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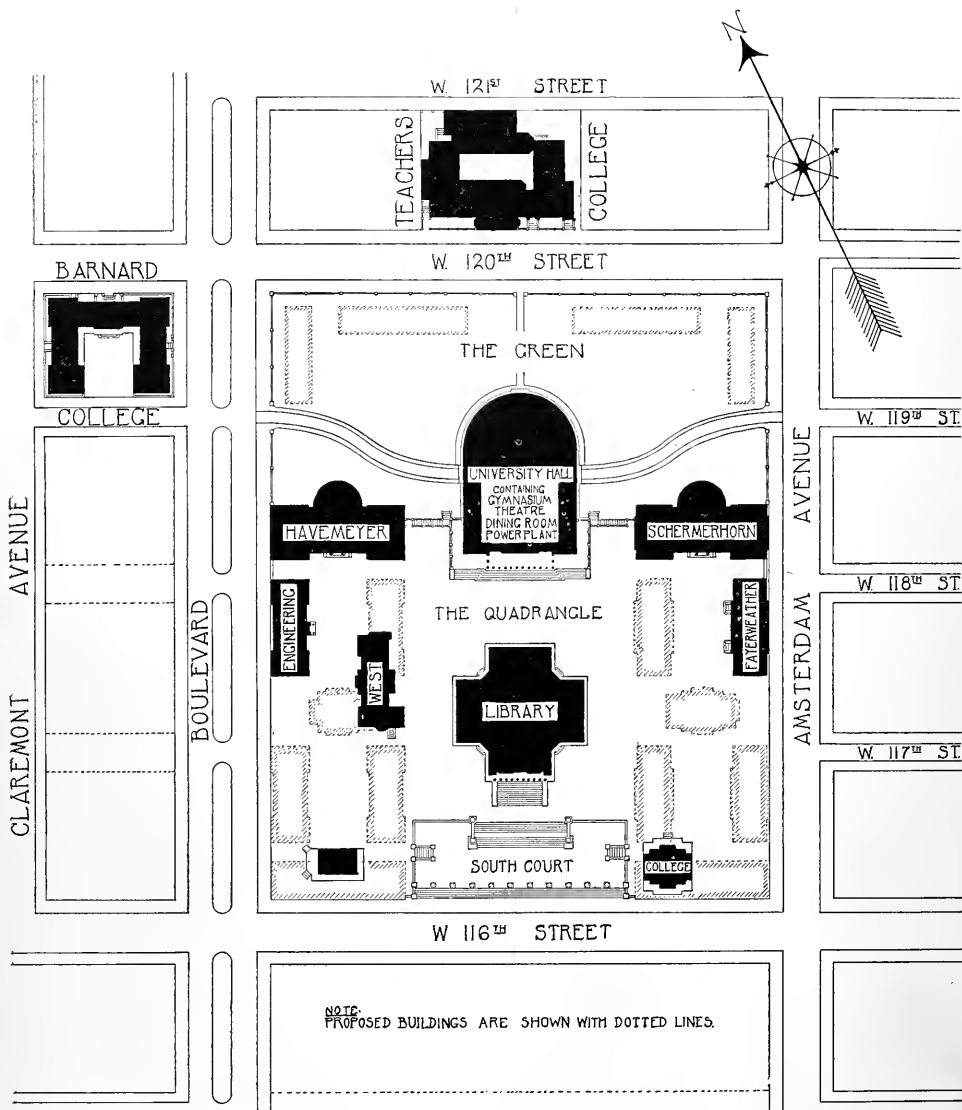
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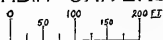
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Instructor in Architectural Engineering	
CLARENCE H. YOUNG, Ph.D.....	312 West 88th Street
Instructor in Greek	
TIMOTHY MATLOCK CHEESMAN, M.D.....	46 East 29th Street
Instructor in Bacteriology	
LIVINGSTON FARRAND, A.B., M.D.....	12 East 29th Street
Instructor in Physiological Psychology	
GEORGE FRANCIS SEVER.....	115 West 47th Street
Instructor in Electrical Engineering	
* BENJAMIN DURYEA WOODWARD, Ph.D.....	462 West 22d Street
Instructor in the Romance Languages and Literatures	
IRA T. VAN GIESON, M.D.....	1 Madison Avenue
Instructor in Pathology and Histology of the Nervous System	
EUGENE HODENPYL, M.D.....	143 West 73d Street
Instructor in Pathology	
NELSON GLENN MCCREA, Ph.D.....	187 Gates Avenue, Brooklyn
Instructor in Latin	
JAMES MACLAY, C.E.....	320 West 115th Street
Instructor in Mathematics	
EDWARD LEAMING, M.D.....	117 West 84th Street
Instructor in Photography	
REGINALD GORDON, A.B.....	315 West 71st Street
Instructor in Physics	
GEORGE W. JARMAN, M.D.....	54 West 76th Street
Chief of Clinic and Instructor in Gynecology	
WILLIAM S. STONE, M.D.....	260 West 57th Street
Instructor in Gynecology	
GEORGE R. LOCKWOOD, M.D.....	44 West 49th Street
Instructor in Physical Diagnosis and Clinical Assistant in Medicine	
WILLIAM K. DRAPER, M.D.....	39 East 35th Street
Instructor in Physical Diagnosis and Clinical Assistant in Medicine	
VAN HORNE NORRIE, M.D.....	21 West 37th Street
Instructor in Physical Diagnosis and Clinical Assistant in Medicine	
ROYAL WHITMAN, M.D.....	126 West 59th Street
Chief of Clinic and Instructor in Orthopædic Surgery	

* Absent on leave

JAMES R. HAYDEN, M.D.	107 West 55th Street
Chief of Clinic and Instructor in Venereal and Genito-Urinary Diseases	
ROBERT LEWIS, Jr., M.D.	14 East 45th Street
Instructor in Otology	
WILLIAM COWEN, M.D.	35 East 60th Street
Chief of Clinic and Instructor in Otology	
CHARLES H. MAY, M.D.	692 Madison Avenue
Chief of Clinic and Instructor in Ophthalmology	
JOHN H. CLAIBORNE, M.D.	39 West 36th Street
Instructor in Ophthalmology	
ELLSWORTH ELIOT, Jr., M.D.	48 West 36th Street
Chief of Clinic and Instructor in Minor Surgery at Vanderbilt Clinic	
HERMANN T. VULTÉ, Ph.D.	New Rochelle, N. Y.
Instructor in General Chemistry	
EDMUND HOWD MILLER, Ph.D.	Columbia University
Instructor in Analytical Chemistry and Assaying	
FRANK W. JACKSON, M.D.	12 West 18th Street
Chief of Clinic and Instructor in General Diagnosis	
JAMES DITMARS VOORHEES, M.D.	Sloane Maternity Hospital
Instructor in Obstetrics and Gynecology	
WALTER B. JAMES, M.D.	31 West 54th Street
Instructor in General Diagnosis	
JOHN WINTERS BRANNAN, M. D.	11 West 12th Street
Instructor in General Diagnosis	
JOHN B. WALKER, M.D.	33 East 33d Street
Assistant Instructor in Operative Surgery	
JAMES EWING, M.D.	260 West 57th Street
Instructor in Clinical Microscopy	
GEORGE T. JACKSON, M.D.	14 East 31st Street
Chief of Clinic and Instructor in Dermatology	
FRANCIS HUBER, M.D.	209 East 17th Street
Chief of Clinic and Instructor in Diseases of Children	
FREDERICK PETERSON, M.D.	60 West 50th Street
Chief of Clinic and Instructor in Neurology	
LUCIUS W. HOTCHKISS, M.D.	49 West 50th Street
Instructor in Surgery at Bellevue Hospital	
FRANCIS H. MARKOE, M.D.	15 East 49th Street
Instructor in Surgery at Bellevue Hospital	
EDWIN APPLETON FINCH	602 St. Nicholas Avenue
Instructor in Woodworking in Teachers College	
CHARLES PRENTICE BENNS	18 Landscape Avenue, Yonkers, N. Y.
Instructor in Metal Working in Teachers College	

MARSTON TAYLOR BOGERT, A.B., Ph.B.....	259 Broadway, Flushing, N. Y.
Instructor in Organic Chemistry	
WILLIAM J. GIES, M.S., Ph.D.....	346 West 58th Street
Instructor in Physiological Chemistry	
HERBERT MAULE RICHARDS, S.D.....	847 West End Avenue
Instructor in Botany	
WILLIAM K. SIMPSON, M.D.....	952 Lexington Avenue
Chief of Clinic and Instructor in Laryngology	
CHARLES NORTH DOWD, M.D.....	135 West 73d Street
Instructor in Surgery at St. Mary's Free Hospital for Children	
GEORGE MONTAGUE SWIFT, M.D.....	20 West 55th Street
Instructor in Medicine at St. Mary's Free Hospital for Children	
RICHARD FROTHINGHAM, M.D.....	19 East 38th Street
Instructor in Laryngology and Clinical Assistant	

Tutors

LOUIS H. LAUDY, Ph.D.....	Columbia University
Tutor in General Chemistry	
JOSEPH STRUTHERS, Ph.D.....	624 East 136th Street
Tutor in Metallurgy	
JOSEPH C. PFISTER, A.M.....	240 Sixth Avenue, Roseville, Newark, N. J.
Tutor in Mechanics	
LEA MCILVAINE LUQUER, C.E., Ph.D.....	321 West 80th Street
Tutor in Mineralogy	
LOUIS AUGUSTE LOISEAUX, B.S.....	106 West 105th Street
Tutor in the Romance Languages and Literatures	
WILLIAM H. FREEDMAN, C.E., E.E.....	157 West 119th Street
Tutor in Electrical Engineering	
ARTHUR HOLLICK, Ph.D.....	New Brighton, N. Y.
Tutor in Geology	
HERSCHEL C. PARKER, Ph.B.....	21 Fort Greene Pl., Brooklyn
Tutor in Physics	
GARY N. CALKINS, Ph.D.....	1 West 81st Street
Tutor in Zoölogy	
WILLIAM T. BREWSTER, A.M.....	112 West 81st Street
Tutor in Rhetoric and English Composition	
ERVIN A. TUCKER, M.D.....	110 West 57th Street
Tutor in Obstetrics and Gynecology	
CHARLES P. WARREN, A.M.....	48 West 9th Street
Tutor in Architectural Construction	
CARLTON CLARENCE CURTIS, Ph.D.....	Corcoran Manor, Mt. Vernon, N. Y.
Tutor in Botany	

OLIVER S. STRONG, Ph.D.....	310 West 122d Street
Tutor in Comparative Neurology and Assistant in Normal Histology	
JONATHAN BRACE CHITTENDEN, Ph.D.....	561 Fifth Avenue
Tutor in Mathematics	
HERMAN STEARNS DAVIS, Ph.D.....	408 West 124th Street
Tutor in Astronomy	
CHARLES C. TROWBRIDGE, B.S.....	7 East 46th Street
Tutor in Physics	
GEORGE CLINTON DENSMORE ODELL, Ph.D.....	112 West 81st Street
Tutor in Rhetoric and English Composition	
HARRY ALONZO CUSHING, Ph.D.....	251 West 54th Street
Tutor in History	
WILLIAM ADDISON HERVEY, A.M.....	607 West 138th Street
Tutor in the Germanic Languages and Literatures	
ADOLPH BLACK, C.E.....	1606 Lexington Avenue
Tutor in Civil Engineering	
SAMUEL A. TUCKER, Ph.B.....	135 Madison Avenue
Tutor in Industrial Chemistry	
CASSIUS JACKSON KEYSER, A.M.....	24 Manhattan Avenue
Tutor in Mathematics	
CHARLES NORRIS, M.D.....	23 East 39th Street
Tutor in Pathology	
J. LIVINGSTON RUTGERS MORGAN, B.S., Ph.D.,	47 Bayard Street, New Brunswick, N. J.
Tutor in Chemical Philosophy and Chemical Physics	
FRANK LEO TUFTS, Ph.D.....	310 West 123d Street
Tutor in Physics	
JOHN ALEXANDER MATHEWS, M.S., Ph.D.....	4 First Pl., Brooklyn
Tutor in General Chemistry	
MILTON C. WHITAKER, B.S.....	334 West 145th Street
Tutor in General Chemistry	
COLIN CAMPBELL STEWART, Ph.D.....	46 West 64th Street
Tutor in Physiology	
RUDOLF TOMBO, Ph.D.....	2 Ridge Pl., Mott Haven
Tutor in the Germanic Languages and Literatures	
WALTER R. SHAW, Ph.D.....	Columbia University
Tutor in Botany	

Assistants

HERBERT PERCY WHITLOCK, C.E.....	449 Park Avenue
Assistant in Mineralogy	
HENRY SKILLMAN CURTIS, A.B.....	New Canaan, Conn.
Assistant in Physics	
HERBERT TREADWELL WADE, A.B.....	149 East 46th Street
Assistant in Physics	

PARKER CAIRNS MCILHINEY, Ph.D.....	320 St. Nicholas Avenue
Assistant in Metallurgy	
ARTHUR MORGAN DAY, A.M.....	128 West 103d Street
Assistant in Political Economy and Social Science	
HENRY JAGOE BURCHELL, Jr., A.M.....	38 East 53d Street
Assistant in Latin	
CHARLES KNAPP, Ph.D.....	1773 Sedgwick Avenue
Assistant in Latin	
FREDERICK R. BAILEY, M.D.....	1165 East Jersey Street, Elizabeth, N. J.
Assistant in Normal Histology	
JAMES DENNISON ROGERS, Ph.D.....	61 West 96th Street
Assistant in Greek	
JOHN HENRY LARKIN, M.D.....	498 West 130th Street
Assistant in Pathology and Curator of the Museum	
PHILIP HANSON HISS, Jr., Ph.D., M.D.....	1 West 30th Street
Assistant in Bacteriology	
THEODORE GREELY WHITE, A.M.....	39 West 26th Street
Assistant in Physics	
CHARLES DERLETH, Jr., B.S., C.E.....	674 East 135th Street
Assistant in Civil Engineering	
DANA CLEMMER WELLS, A.B., E.E.....	109 Willow Street, Brooklyn
Assistant in Physics	
CHARLES T. PARKER, M.D.....	46 East 34th Street
Assistant in Operative Surgery	
EDWARD H. L. MCGINNIS, M.D.....	329 Amsterdam Avenue
Electro-Therapeutist	
FLORA E. HARPAM, A.M.....	331 West 24th Street
Computer at the Observatory	
SAMUEL SWAYZE SEWARD, JR., A.M.....	113 West 85th Street
Assistant in Literature	
WILLIAM ROBERT WILLIAMS, M.D.....	152 West 57th Street
Assistant in Normal Histology	
FRANCIS CARTER WOOD, M.D.....	8 East 49th Street
Assistant in Clinical Microscopy and Demonstrator in Pathology at	
St. Luke's Hospital	
PHILIP ERNEST BRODT, A.B.....	758 West End Avenue
Assistant in Rhetoric and English Composition	
ALFRED LOUIS KROEBER, A.B.....	316 West 89th Street
Assistant in Rhetoric and English Composition	
FITZHUGH TOWNSEND, A.B., E.E.....	131 Fifth Avenue
Assistant in Electrical Engineering	
FRANK C. HOOPER, Met.E.....	463 Manhattan Avenue
Assistant in Mining	

WILLIAM S. DAY, Ph.D.....	203 West 85th Street
Assistant in Physics	
JAMES HOWARD MCGREGOR, B.S., A.M.....	380 St. Nicholas Avenue
Assistant in Zoölogy	
SHEPHERD IVORY FRANZ, A.B.....	62 Cottage Street, Jersey City, N. J.
Assistant in Psychology	
HENRY F. HORNPOSTEL.....	Flatlands, N. Y.
Assistant in Architecture	
CAVALIER HARGRAVE JOÛET, Ph.D.....	Roselle, N. J.
Assistant in Analytical Chemistry	
WILLIAM FREDERICK NEUMANN, M.D.....	114 East 59th Street
Assistant in Bacteriology	
CHARLES A. HARPER, Ph.D.....	535 West 125th Street
Assistant in Organic Chemistry	
WILBUR GREGORY HUDSON, M.E.....	73 West 131st Street
Assistant in Mechanical Engineering	
WILLIAM CLAFLIN ANDREWS, E.E.....	Hotel Margaret, Columbia Heights, Brooklyn
EDWARD L. COSTER.....	Irvington, N. Y.
Assistant in Mechanical Engineering	
ALFRED NEWTON RICHARDS, A.B.....	346 West 58th Street
Assistant in Physiological Chemistry	
WALTER WHEELER COOK, A.B.....	174 West 96th Street
Assistant in Mathematics	
HENRY BEDINGER MITCHELL, E.E.....	Linden Hill, Flushing, N. Y.
Assistant in Mathematics	
WALTER TAYLOR MARVIN, Ph.D.....	6 West 130th Street
Assistant in Philosophy	
RICHARD S. MCCAFFERY, M.E.....	960 East 169th Street
Assistant in Metallurgy	
LEONARD BEECHER MCWHOOD, A.B.....	Columbia University
Assistant in Music	
CLARENCE A. MCWILLIAMS, M.D.....	24 East 54th Street
Assistant in Normal Histology	
D. STUART DODGE JESSUP, M.D.....	360 West 21st Street
Assistant in Normal Histology and Clinical Assistant in Surgery	
DANIEL JORDAN, B.S., Pd.B.....	310 West 113th Street
Assistant in the Romance Languages and Literatures	
JOHN DRISCOLL FITZ-GERALD, II, A.B.....	245 West 109th Street
Assistant in the Romance Languages and Literatures	
LEON LAIZER WATTERS, B.S.....	153 East 56th Street
Assistant in General Chemistry	

ADAM LEROY JONES, Ph.D.....	310 West 113th Street
Assistant in Philosophy	
VICTOR LENHER, Ph.D.....	519 West 123d Street
Assistant in Analytical Chemistry	
FREDERIC SACKETT HYDE, Ph.B.....	215 Schermerhorn Street, Brooklyn
Assistant in Analytical Chemistry	
EMIL JUSTUS RIEDERER, B.S.....	145 West 94th Street
Assistant in Analytical Chemistry	
SAMUEL OSGOOD MILLER, C.E.....	West Nyack, N. Y.
Assistant in Mechanical Engineering	
ALLAN CHOTARD EUSTIS, B.S., Ph.B.....	346 West 58th Street
Assistant in Physiological Chemistry	

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GILBERT VAN INGEN.....	244 East 50th Street
Curator of the Geological Collections	
JOHN KUNKEL SMALL, Ph.D.....	61 Morningside Avenue
Curator of the Herbarium	

Lecturers

WILLIAM ZEBINA RIPLEY, Ph.D.....	Columbia University
Prize Lecturer in Physical Geography and Ethnology	
REV. ABRAHAM YOHANNAN.....	138 East 48th Street
Lecturer in Oriental Languages	
EDMOND KELLY, A.M.....	107 East 60th Street
Lecturer in Municipal Government and International Law	
HERBERT NOBLE, A.M., LL.B.....	49 West 57th Street
Lecturer on Bailments, Domestic Relations, and Insurance	
* CHARLES AUGUSTUS STRONG, A.B.....	Lakewood, N. J.
Lecturer in Psychology	
FRANZ BOAS, Ph.D.....	123 West 82d Street
Lecturer in Physical Anthropology	
WILLIAM ROBERT SHEPHERD, Ph.D.....	Columbia University
Prize Lecturer in History	
CHARLES T. TERRY, A.B., LL.B.....	14 Central Park, W.
Lecturer on Contracts	
GEORGE JAMES BAYLES, Ph.D.....	Orange, N. J.
Prize Lecturer on The Civil Aspects of Ecclesiastical Organizations	
HENRY OSBORN TAYLOR, A.B., LL.B.....	47 West 43d Street
Lecturer in Literature	

* Absent on leave

WILLIAM T. PARTRIDGE.....	23 West 50th Street
Lecturer in Architectural Design	
HENRY E. CRAMPTON, JR., A.B.....	158 West 119th Street
Lecturer in Zoölogy	
RUSSELL H. CHITTENDEN, Ph.D.....	New Haven, Conn.
Director of the Department of Physiological Chemistry and Lecturer	
CHARLES EDWARD MERRIAM, JR., A.M.....	221 West 122d Street
Lecturer upon Political Theories	
WILLIAM A. ANTHONY, Ph.B.....	313 West 33d Street
Lecturer in Electrical Engineering	
EDWIN B. CRAGIN, M.D.....	62 West 50th Street
Lecturer on Obstetrics and Secretary of the Faculty of Medicine	
WELLINGTON PUTNAM.....	2047 Seventh Avenue
Lecturer in Rhetoric and English Composition	
HENRY BARGY, A.M.....	Columbia University
Lecturer in the Romance Languages and Literatures	
GEORGE WILLIAM HILL, Sc.D., LL.D.....	West Nyack, N. Y.
Lecturer in Celestial Mechanics	
MORTIMER LAMSON EARLE, Ph.D.....	462 West 22d Street
Lecturer in Greek	
FREDERIC BANCROFT, Ph.D.....	1700 H Street, N. W., Washington, D. C.
Lecturer on Diplomacy	
STEWART CHAPLIN, A.B., LL.B.....	317 West 114th Street
Lecturer on Criminal Law	
GEORGE N. OLCOTT, Ph.D.....	245 West 109th Street
Lecturer in Roman Archæology	
CURTIS HIDDEN PAGE, Ph.D.....	128 West 103d Street
Lecturer in the Romance Languages and Literatures	
RICHARD HOVEY, A.B.....	202 West 103d Street
Lecturer in English Literature	

Clinical Assistants at the Vanderbilt Clinic

JOHN ALDRICH, M.D.....	Dermatology
WILLIAM ARMSTRONG, M.D.....	Medicine
CHARLES E. ATWOOD, M.D.....	Neurology
PEARCE BAILEY, M.D.....	Neurology
EDMUND W. BILL, M.D.....	Laryngology
A. B. BONAR, M.D.....	Neurology
ARTHUR R. BRAUNLICH, M.D.....	Medicine
WALTER B. BROUNER, M.D.....	Venereal Diseases
JOHN CABOT, M.D.....	Dermatology
ARCHIBALD CAMPBELL, M.D.....	Neurology

M. L. CARR, M.D.	Otology
CURTIS B. CARTER, M.D.	Ophthalmology
WILLIAM H. CASWELL, M.D.	Neurology
ARTHUR P. COLL, M.D.	Laryngology
CHRISTOPHER J. COLLES, M.D.	Laryngology
R. H. CUNNINGHAM, M.D.	Neurology
CHARLES T. DADE, M.D.	Dermatology
JONATHAN DWIGHT, Jr., M.D.	Laryngology
LEONARD W. ELY, M.D.	Orthopædic Surgery
ALBERT W. FERRIS, M.D.	Neurology
EDWARD M. FOOTE, M.D.	Surgery
JOSEPH E. FULD, M.D.	Laryngology
HOMER W. GIBNEY, M.D.	Orthopædic Surgery
WILLIAM C. GILLEY, M.D.	Venereal Diseases
S. P. GOODHART, M.D.	Neurology
JOSEPH J. HIGGINS, M.D.	Gynecology
EDMOND Y. HILL, M.D.	Venereal Diseases
ANGIER B. HOBBS, M.D.	Medicine
JOHN H. P. HODGSON, M.D.	Dermatology
WARD A. HOLDEN, M.D.	Ophthalmology
WOOLSEY HOPKINS, M.D.	Laryngology
JOSEPH HUBER, M.D.	Diseases of Children
LEE M. HURD, M.D.	Laryngology
S. E. JELLIFFE, M.D.	Neurology
JOHN M. KENNEDY, M.D.	Gynecology
B. E. KRYSTALL, M.D.	Neurology
JOHN LESHURE, M.D.	Laryngology
JOHN J. MCCOY, M.D.	Laryngology
JAMES P. MCEVOY, M.D.	Laryngology
FRED S. MCHALE, M.D.	Diseases of Children
MAX MAILHOUSE, M.D.	Neurology
E. PIERRE MALLETT, M.D.	Gynecology
GEORGE H. MALLETT, M.D.	Gynecology
JACKSON M. MILLS, M.D.	Ophthalmology
FRANK OASTLER, M.D.	Gynecology
MORTON R. PECK, M.D.	Neurology
CHARLES I. PROBEN, M.D.	Gynecology
CHARLES R. L. PUTNAM, M.D.	Surgery
CHARLES C. RANSOM, M.D.	Dermatology
C. C. RATHBONE, M.D.	Venereal Diseases
ARTHUR M. SHRADY, M.D.	Medicine
LOUIS M. SILVER, M.D.	Diseases of Children
FREDERICK E. SONDERN, M.D.	Diseases of Children
E. S. STEESE, M.D.	Neurology
JOHN B. STEIN, M.D.	Venereal Diseases
BENJAMIN W. STIEFEL, M.D.	Gynecology
HORACE S. STOKES, M.D.	Orthopædic Surgery

ALBERT E. SUMNER, M.D.....	Medicine
ALLAN G. TERRELL, M.D.....	Otology
W. D. TRENWITH, M.D.....	Venereal Diseases
HENRY H. TYSON, M.D.....	Ophthalmology
EDWARD L. WILLIAMSON, M.D.....	Venereal Diseases
J. V. D. YOUNG, M.D.....	Gynecology

Emeritus Officers

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THOMAS M. MARKOE, M.D.....	500 Madison Avenue Emeritus Professor of Surgery
T. GAILLARD THOMAS, M.D.....	600 Madison Avenue Emeritus Professor of Obstetrics and Gynecology
JOHN T. METCALFE, M.D.....	Cold Spring, N. Y. Emeritus Professor of Clinical Medicine
EDWARD CURTIS, M.D.....	120 Broadway Emeritus Professor of Materia Medica and Therapeutics
FESSENDEN N. OTIS, M.D.....	5 West 50th Street Emeritus Professor of Genito-Urinary Diseases
JOHN D. QUACKENBOS, A.M., M.D.....	331 West 28th Street Emeritus Professor of Rhetoric
NATHANIEL LORD BRITTON, Ph.D.....	New York Botanical Garden Emeritus Professor of Botany
THOMAS EGLESTON, E.M., Ph.D., LL.D.....	35 Washington Square Emeritus Professor of Mineralogy and Metallurgy
JOHN ORDRONAU, M.D., LL.D.....	30 Broad Street Emeritus Professor of Medical Jurisprudence
JAMES W. McLANE, M.D.....	51 West 38th Street Emeritus Professor of Obstetrics
WILLIAM H. DRAPER, M.D.....	19 East 47th Street Emeritus Professor of Clinical Medicine

Advisory Committee on Art

CHARLES F. MCKIM
DANIEL C. FRENCH
EDWIN H. BLASHFIELD

Columbia University

in the City of New York

GENERAL STATEMENT

On October 31, 1754, during the reign of George II., His Majesty's Letters Patent under the Great Seal of the Province were issued, incorporating THE GOVERNORS OF THE COLLEGE OF THE PROVINCE OF NEW YORK IN THE CITY OF NEW YORK IN AMERICA, and providing for the establishment of a College to be known as "Kings College," "for the Instruction and Education of Youth in the Learned Languages and in the Liberal Arts and Sciences." The interpretation placed upon this clause of the Charter, at the time, is shown by the original announcement of Kings College in 1754, which, in part, reads as follows: "Vth and Lastly, A serious, virtuous, and industrious Course of Life being first provided for, it is further the Design of this College, to instruct and perfect the Youth in the learned Languages, and in the Arts of Reasoning exactly, of Writing correctly, and Speaking eloquently: And in the Arts of Numbering and Measuring, of Surveying and Navigation, of Geography and History, of Husbandry, Commerce and Government; and in the Knowledge of all Nature in the Heavens above us, and in the Air, Water and Earth around us, and the various Kinds of Meteors, Stones, Mines and Minerals, Plants and Animals, and of every Thing useful for the Comfort, the Convenience, and Elegance of Life, in the chief Manufactures relating to any of these things: And finally, to lead them from the Study of Nature, to the Knowledge of themselves, and of the God of Nature, and their Duty to Him, themselves, and one another; and every Thing that can contribute to their true Happiness both here and hereafter."

The charter named as Governors the Archbishop of Canterbury, the Governor of the Province, certain officers of the Crown, ex-officio, the Rector of Trinity Church, and the Ministers of the Reformed Dutch, Lutheran, French, and Presbyterian Churches, for the time being, and twenty-four residents of the city. Under this charter, Kings College was founded, continuing to be known by that name until 1784. An additional charter was granted May 30, 1755, authorizing the appointment of a Professor of Divinity by the Reformed Protestant Dutch Church.

Upon the convening of the Legislature of the State of New York in 1784, an act was passed incorporating the "REGENTS OF THE UNIVERSITY OF THE STATE OF NEW YORK," and vesting the property of Kings College in the Regents. The act also changed the name of the College to Columbia College.

In 1787, this act was repealed, and a statute was passed enacting "that the Charter heretofore granted to the Governors of the College of the Province of New York in the City of New York in America, dated the thirty-first day of October, in the year of our Lord one thousand seven hundred and fifty-four, shall be and hereby is fully and absolutely ratified and confirmed, in all respects, except that the College thereby established shall be henceforth called Columbia College"; and "that the style of the said corporation shall be, The Trustees of Columbia College in the City of New York." Certain other amendments also were made in the charter to conform to the new conditions.

In 1810, the charter was again amended in certain particulars at the request of the Trustees, and re-enacted, but the corporate title remained and still continues unchanged. The title to all corporate property is vested in a board of twenty-four Trustees, whose term of office is for life, and who form a self-perpetuating body, exercising the power of appointment as to all officers of instruction and administration.

On February 3, 1896, the Trustees adopted the following resolution :

"RESOLVED, That in all official publications hereafter issued by or under authority of the Trustees, all the departments of instruction and research maintained and managed by this corporation may, for convenience, be designated collectively as 'Columbia University in the City of New York,' or 'the University'; and the School of Arts, as the same is now known and described, may hereafter be designated as 'Columbia College,' or 'the College.'"

The President has charge of the educational administration of the University and is Chairman of the University Council and of every faculty established by the Trustees.

The University Council is a representative body consisting of the President, the Dean and the Secretary of the College, ex-officio, and the Dean and one elected member from each of the faculties of the University. Subject to the reserved power of control by the Trustees, the University Council has charge of the general educational interests of the University and of all matters affecting more than one faculty.

Columbia University includes both a College and a University.

I. THE COLLEGE

THE COLLEGE offers a course of four years, leading to the degree of Bachelor of Arts. Candidates for admission to the College must be at least fifteen years of age, and pass an examination on prescribed subjects. The curriculum offers a wide range of electives, both literary and scientific, making it possible for the student to elect such courses during his first three years as will fit him either for the professional course he may intend to pursue, or for advanced work under any of the non-professional faculties. During the senior year the student may study under any of the faculties of the University.

The degree of Bachelor of Arts is conferred upon graduates of Columbia College and of Barnard College, upon the recommendation of the Faculty of Columbia College.

II. THE UNIVERSITY

In a technical sense, the Faculties of Law, Medicine, Philosophy, Political Science, Pure Science, and Applied Science, taken together, constitute the University. These faculties offer advanced courses of study and investigation, respectively, in (*a*) private or municipal law, (*b*) medicine, (*c*) philosophy, philology, and letters, (*d*) history, economics, and public law, (*e*) mathematics and natural science, and (*f*) applied science. Courses of study under all of these faculties are open to members of the senior class in the College and also to all students who have successfully pursued an equivalent course of undergraduate study to the close of the junior year. These courses lead, through the bachelor's degree, to the university degrees of Master of Arts and Doctor of Philosophy. The degree of Master of Laws is also conferred for advanced work in law done under the Faculties of Law and Political Science together.

A. The Non-Professional Schools

THE FACULTY OF PHILOSOPHY offers advanced courses and opportunities for original research in philosophy and education, psychology, Greek and Latin (including Archæology and Epigraphy), English, literature, music, and the Germanic, the Romance, and the Oriental Languages.

THE FACULTY OF POLITICAL SCIENCE offers advanced courses and opportunities for original research in political and social science, including history, economics, and public law.

THE FACULTY OF PURE SCIENCE offers advanced courses and opportunities for original research in mathematics, mechanics, astronomy, physics, chemistry, mineralogy, geology, zoölogy, botany, physiology, anatomy, and bacteriology.

THE FACULTY OF APPLIED SCIENCE offers advanced courses and opportunities for original research in mining, metallurgy, engineering (civil, electrical, mechanical, and sanitary), and architecture.

B. The Professional Schools

THE FACULTIES OF LAW, MEDICINE, AND APPLIED SCIENCE conduct, respectively, the professional schools of Law, Medicine, and Mines, Chemistry, Engineering, and Architecture, to which students are admitted as candidates for professional degrees on terms prescribed by the faculties concerned.

THE FACULTY OF TEACHERS COLLEGE conducts professional courses for teachers, that lead to the diploma of Teachers College.

THE SCHOOL OF LAW, established in 1858, offers a course of three years in the principles and practice of private and public law, leading to the degree of Bachelor of Laws.

THE COLLEGE OF PHYSICIANS AND SURGEONS, founded in 1807, offers a course of four years in the principles and practice of medicine and surgery, leading to the degree of Doctor of Medicine.

THE SCHOOL OF MINES, established in 1864, offers courses of study, each

of four years, leading to a professional degree, in mining engineering and in metallurgy.

THE SCHOOLS OF CHEMISTRY, ENGINEERING, AND ARCHITECTURE, set off from the School of Mines in 1896, offer, respectively, courses of study, each of four years, leading to an appropriate professional degree, in analytical and applied chemistry; in civil, sanitary, electrical, and mechanical engineering, and in architecture.

TEACHERS COLLEGE is an independent corporation, but in the University system it ranks as a professional school for teachers.

C. Affiliated Colleges

BARNARD COLLEGE, a college for women, founded in 1889, is also included in the educational system of Columbia University, and its educational work is under the jurisdiction of the University. It is an independent corporation, but, by agreement with the University, its curriculum is prescribed and its examinations are conducted by the University. Its educational work is conducted either by instructors of Columbia University or by instructors appointed with the approval of the President of the University. The requirements for admission and the standard of scholarship are the same as in Columbia College, and its graduates receive the degrees of Columbia University. Students of Barnard College may attend certain advanced courses in the University, but the undergraduates as a body receive their instruction in Barnard College.

TEACHERS COLLEGE, founded in 1888 and chartered in 1899, was included in the University in 1898. It offers courses of study, each of four years, leading to the college diploma for secondary, elementary, and kindergarten teachers. It also offers courses of two years, leading to a departmental diploma, in art, domestic science, domestic art, and manual training. Certain of its courses are accepted by Columbia University, and may be taken by students of the University, without extra charge, in partial fulfilment of the requirements for the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy.

The division of the University into faculties and schools neither controls nor limits the student in his freedom of electing, under one or several of the faculties, courses that lead to the university degrees of Master of Arts and Doctor of Philosophy. The degree of Master of Laws is also a university degree, but for this degree the choice of the student is restricted to subjects under the two Faculties of Law and Political Science. All of these degrees are granted upon the recommendation of the University Council.

The professional degrees are Bachelor of Laws, Doctor of Medicine, Bachelor of Science, Engineer of Mines, Metallurgical Engineer, Civil Engineer, Electrical Engineer, and Mechanical Engineer. These degrees are conferred upon the recommendation of the Faculties of Law, Medicine, and Applied Science, respectively.

The degrees of Doctor of Laws, Doctor of Sacred Theology, and Doctor of Letters are conferred *honoris causa* by the Trustees at their discretion.

In addition to the opportunities for research and investigation afforded to students by the libraries, museums, and manufacturing establishments of New

York City, the University, by special agreement, is able to offer to its students certain privileges, free from additional charge, in the Union Theological Seminary, the Metropolitan Museum of Art, and the American Museum of Natural History.

The principal administrative officers, other than the President, are the deans of the several faculties, the Secretary of the University, the Librarian, the Bursar, and the Superintendent of Buildings and Grounds.

In the following pages will be found a statement of the method of entering the University, the cost of tuition, the endowments for the benefit of students, a statement of the special funds held by the Trustees, and the privileges open to students in affiliated institutions.

The scope of instruction given in Columbia University is indicated broadly by the statements of the departments of instruction, which are given in alphabetical order, and in connection with each of which the courses offered for the current academic year are stated in detail, with a brief summary of the equipment of the department for the work it undertakes to do.

Following these details will be found :

- The requirements for the university degrees,
- The organization of the several schools, together with the requirements for the various degrees under the control of separate schools,
- Statements concerning Barnard College and Teachers College,
- The publications of the University,
- Degrees conferred,
- Lists of fellows, scholars, and honor men,
- Directory of officers and students,
- Calendar for the academic year.

The work of the University was begun at Morningside Heights, October 4, 1897.

ADMISSION

For the requirements for admission to the various schools of the University see Table of Contents.

COLUMBIA COLLEGE	SCHOOL OF POLITICAL SCIENCE
SCHOOL OF LAW	SCHOOL OF PHILOSOPHY
SCHOOL OF MEDICINE	SCHOOL OF PURE SCIENCE
SCHOOLS OF MINES, CHEMISTRY,	BARNARD COLLEGE
ENGINEERING, AND ARCHITECTURE	TEACHERS COLLEGE

Students entering the University for the first time must pay a matriculation fee of \$5, and if an examination for entrance is required, such fee is payable before examination. All such students, after filling in the blank provided for the purpose by the dean of the proper faculty, and obtaining the signature of the dean thereto, are required to present the same to the Bursar with the proper fee. Students intending to pursue a partial course must secure from the dean of the proper faculty a certificate of the exact fee to be paid.

No student is permitted to attend any academic exercises until he has complied with the regulations in regard to matriculation and registration.

Students entering the Medical School pay their fees and register at the College of Physicians and Surgeons, 437 West 59th Street.

Communications for the President should be addressed to him at the University.

For catalogue, circulars, and detailed information, address the Secretary of the University.

The catalogue is published in December and is sold at twenty-five cents a copy.

The circulars of the various schools and departments are issued in the early spring and are distributed upon application.

Women

Certain courses under the Faculties of Philosophy, Political Science, and Pure Science are open to women on the same terms as to men. Women wishing to enter any of these courses as candidates for a degree or as special students must register through Barnard College, except that students of Teachers College may register direct.

Auditors

Certain courses of lectures are open to the public, men and women alike, on payment of an auditor's fee. No auditor will be admitted to any course without the consent of the instructor, previously obtained; auditors' tickets must be procured from the Bursar of the University, and shown to the instructors in charge of the courses for which they are issued.

Withdrawal

Students are requested, in case of withdrawal from the University during the academic year, to notify the Bursar.

FEES

The regulations in regard to fees are as follows:

For Matriculation \$ 5

For Tuition:

For candidates for a degree.

* In the College	per annum	150
In the School of Law	"	150
In the College of Physicians and Surgeons	"	200
In the Schools of Mines, Chemistry, Engineering, and Architecture	"	200
In the School of Political Science	"	150

* Seniors taking the first year in the Medical School or in the Schools of Mines, Chemistry, Engineering, and Architecture pay the fee required in those schools, \$200.

In the School of Philosophy	per annum	\$150
In the School of Pure Science	"	200
For candidates for the degrees of Master of Arts and Doctor of Philosophy	"	150

The maximum fee for the degrees of Master of Arts and Doctor of Philosophy is respectively \$150 and \$300.

For students pursuing partial courses, at the rate of \$15 per annum for each hour of attendance per week on lectures or recitations, with a maximum fee of	150
except that in the Schools of Pure Science and Applied Science the maximum fee is	200
For auditors, at the rate of \$20 per annum for each hour of attendance per week on lectures or recitations, with a maximum fee of	200

For Examinations :

At unusual times	5
For the bachelor's degree (not professional or technical)	15
For any professional or technical degree	25
For the degree of Master of Arts	25
For the degree of Doctor of Philosophy	35

For Use of the Gymnasium :

Each student is required to pay an annual gymnasium fee of	7
This entitles him to a locker and to the free use of the gymnasium and the baths including all necessary laundry service.	

Special Fees :

In the College of Physicians and Surgeons.

Dissecting material, per "part"	1
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For special students :

Didactic lectures from each of the six chairs of Anatomy ; Materia Medica and Therapeutics ; Obstetrics and Gynecology ; Physiology ; Practice of Medicine and Neurology ; Surgery	20
Dissection	10
Laboratory course in normal histology, including materials	25
Laboratory course in pathology and pathological histology, including materials	25
Laboratory fee for special instruction in pathology, histology, or bacteriology, per month	25
Operative surgery on the cadaver, including material, per course	20

For other special courses the fees must be specially arranged for with the instructors.

The clinical lectures at the Vanderbilt Clinic are free to matriculates who do not take the regular curriculum.

The public clinical lectures, and demonstrations of pathological anatomy, which are given at the hospitals by officers of the College, are free to matriculates.

In the Schools of Mines, Chemistry, Engineering, and Architecture.

For graduate students :

For the use of the cabinets only	\$25
For the use of the drawing academy only	25
For the use of the laboratories or either of them	50
For candidates for admission to advanced standing who attend the Summer School in Surveying	35

The President and Treasurer are authorized to determine the fees to be paid in special cases, for partial attendance, upon the basis of the fees hereinbefore specified.

Payment of Fees

The matriculation fee shall be paid before the entrance examination. Examination fees shall be paid in all cases before examination.

Annual tuition fees may be paid in equal instalments at the beginning of each session of the academic year, except that in the case of students in the College of Physicians and Surgeons such fees shall be paid in full at the beginning of the academic year, and except that whenever the total amount of a student's tuition fees shall not exceed one hundred dollars, the full amount shall be paid at the beginning of the academic year or at entrance.

No candidate for a degree in any school shall be entitled to receive the same until he shall have discharged all his dues to the University.

Free and Reduced Tuition*

Free or reduced tuition may be granted in the College and in the Schools of Law, Mines, Chemistry, Engineering, and Architecture, in special cases on the ground of character, ability, and need combined, but no reduced fee shall be less than fifty per cent. of the statutory charge, and the total number of students receiving free or reduced tuition under any faculty shall not exceed ten per cent. of the total number of students registered with such faculty. No free or reduced tuition shall be granted to any student during the first year of his connection with the University.

Fellows

Fellows shall be exempt from the payment of all fees.

Free Students

Free students and students granted a reduction of tuition fees shall not be exempt from the payment of fees for matriculation, for extra examination, for examination for a degree, and for the use of the gymnasium.

* It is in contemplation to substitute a system of scholarships for the free and reduced tuition now granted. If adopted, the new system will go into effect July 1, 1899.

Comparative Statement of Students' Expenses for the Academic Year, October to June

BASED ON STUDENTS' STATEMENTS

	Low	Average	Liberal
Matriculation Fee (First Year)	\$ 5	\$ 5	\$ 5
Tuition Fee	150	150	150
Gymnasium Fee	7	7	7
Books	15	30	40 up
College Incidentals	—	15	50 "
Room (32 weeks)	48	112	160 "
Board (32 weeks)	112	128	192 "
Clothes and Washing	35	75	125 "
All other Expenses	15	25	100 "
Total	\$387	\$547	\$829 up

In the case of students in the Schools of Medicine, Applied Science, and Pure Science, \$50 for tuition should be added, the fee in those schools being \$200.

COMMITTEE ON EMPLOYMENT FOR STUDENTS

The University Council has constituted a Standing Committee on Employment for Students, consisting at present of the following members :

JAMES F. KEMP.....	<i>Faculty of Pure Science, Chairman</i>
THOMAS S. FISKE.....	<i>Faculty of the College</i>
GEORGE S. HUNTINGTON.....	<i>Faculty of Medicine</i>
FRANCIS M. BURDICK.....	<i>Faculty of Law</i>
FREDERICK R. HUTTON.....	<i>Faculty of Applied Science</i>
FRANKLIN H. GIDDINGS.....	<i>Faculty of Political Science</i>
HENRY A. TODD.....	<i>Faculty of Philosophy</i>
ALBERT BRITT.....	<i>Secretary</i>

It is the design of the Committee to put students, desiring to work their way through college, especially those coming from elsewhere than New York or the immediate vicinity, in the way of earning enough for their partial or complete support, or if possible to extend assistance to them in other ways, while they are pursuing their studies here. It is believed that many opportunities may be offered to students of this class if the fact of their desire to obtain employment is made known. Some of the openings likely to be available are : private tutoring, translating, copying of various sorts, teaching in evening schools, travelling companions, stenography, and typewriting. All communications should be addressed to the Committee.

All the heads of clinics in the Medical School have consented to give advice

without charge to students who present cards of introduction from the Committee. Such visitors are received as a general rule during office hours at private offices. This insures to students who need it, the best medical advice in the city.

APPOINTMENT COMMITTEE

The Appointment Committee instituted by authority of a resolution of the University Council, passed April 19, 1898, consists at present of the following members:

NICHOLAS MURRAY BUTLER, Ph.D., LL.D.....	<i>Chairman</i>
	<i>Professor of Philosophy and Education</i>
FREDERICK REMSEN HUTTON, E.M., Ph.D.,	
	<i>Professor of Mechanical Engineering</i>
EDWIN ROBERT ANDERSON SELIGMAN, Ph.D.,	
	<i>Professor of Political Economy and Finance</i>
JAMES MCKEEN CATTELL, Ph.D.....	<i>Professor of Psychology</i>
HENRY ALFRED TODD, Ph.D.....	<i>Professor of Romance Philology</i>
GEORGE WILLIAM KIRCHWEY, A.B.....	<i>Professor of Law</i>
GEORGE RICE CARPENTER, A.B.,	
	<i>Professor of Rhetoric and English Composition</i>
JAMES RIGNALL WHEELER, Ph.D.....	<i>Professor of Greek</i>
CALVIN THOMAS, A.M.,	
	<i>Gebhard Professor of the Germanic Languages and Literatures</i>
FRANK MORTON MCMURRY, Ph.D.,	
	<i>Professor of the Theory and Practice of Teaching</i>

The duty of the Committee is to recommend graduates of the College or University for teaching or other positions, and to assist competent graduates to obtain such positions.

The Committee keep classified lists of those who wish employment, and will be glad to be informed promptly of present or prospective vacancies in positions for which college-trained men or women are eligible.

No fees are charged for any service rendered by the Committee.

Communications in regard to vacancies and recommendations of suitable candidates for the same should be addressed to the Chairman of the Appointment Committee, Room 420, Library, Columbia University, New York.

FELLOWSHIPS, SCHOLARSHIPS, AND OTHER PROVISION FOR THE ASSISTANCE OF STUDENTS

University Fellowships

Twenty-four fellowships, known as "University Fellowships," are awarded by the Council, to those applicants who give evidence of special fitness to pursue courses of higher study and original investigation, the competition to be open to graduates of all colleges and scientific schools. Vacancies occurring in any such fellowships shall be filled in the same manner in which original appointments are made.

Additional university fellows may be appointed in cases where the original appointee waives the emolument of the fellowship while accepting the honor of the appointment, and in cases where a university fellow desires reappointment without emolument.

The application shall be made prior to March 1, in writing, addressed to the President of Columbia University. Applications received later than March 1 may fail of consideration. The term of the fellowship is one year, dating from July 1. Residence should begin October 1.

The candidate must give evidence

(a) of a liberal education, such as a diploma already granted, or about to be received, from a college or scientific school of good repute ;

(b) of decided fitness for a special line of study, such as an example of some scientific or literary work already performed ;

(c) of upright character, such as a testimonial from some instructor.

The value of each fellowship is \$500. Payments will be based on the time during which the fellow shall have been in residence, and are made in quarterly instalments, beginning November 30. The holder of a fellowship is exempt from the charges for tuition.

Every holder of a fellowship will be expected to perform such duties as may be allotted to him in connection with his course of study, which course shall be such as to lead to the degree of Doctor of Philosophy. He will be expected to devote his time to the prosecution of special studies under the direction of the head of the department to which he belongs, and before the close of the academic year to give evidence of progress by the preparation of a thesis, the completion of a research, the delivery of a lecture, or by some other method. He must reside in New York or vicinity during the academic year.

No holder of a fellowship shall be permitted to pursue a professional or technical course of study during his term. With the written approval of the President, but not otherwise, he may give instruction or assistance in any department of the University.

A fellow may be reappointed at the end of a year for reasons of weight. No fellow may be reappointed for more than two terms of one year each.

As these fellowships are awarded as honors, those who are disposed, for the benefit of others or for any other reason, to waive the pecuniary emoluments may do so, and still have their names retained on the list of fellows.

Tyndall Fellowship

A fellowship known as the "John Tyndall Fellowship for the Encouragement of Research in Physics" was endowed by John Tyndall, LL.D., Professor of Natural History in the Royal Institution of Great Britain, November 2, 1885, by a gift of \$10,945.50 in trust, to apply the income in supporting or assisting "one or more American pupils who may have shown decided talents in physics, and preferably such as shall express the determination to devote their lives to the advancement of theoretic science and original investigations in that department of learning." This fellowship is awarded to some suitable person, who is either a graduate of or a student in the University, but not necessarily a candidate for a degree. Such fellow shall be appointed by the Council upon the

recommendation of the head of the department of Physics. Such appointments shall always be for the term of one year only, but the fellow, for the time being, shall be eligible for appointment from year to year, upon like recommendation. The fellow so appointed shall be entitled to receive during his term of office the net income of the capital sum constituting the endowment, to be paid in four quarterly instalments on the usual quarter days, upon the certificate of the President; and the Trustees guarantee that such net income will amount to at least \$648 a year, being six per cent. upon \$10,800, the fund presented to the University by Professor Tyndall.

Barnard Fellowship

A fellowship known as the "Barnard Fellowship for Encouraging Scientific Research" was endowed by the bequest of \$10,000 left by President F. A. P. Barnard for the purpose of encouraging scientific research. The fellowship is of the annual value of \$500, and is awarded to a graduate of the College or of the Schools of Mines, Chemistry, Engineering, or Architecture, who has evinced decided aptness for physical investigation and who may be disposed to devote himself to such investigation for some years continuously. Such fellow shall be appointed by the Council upon the joint recommendation of the faculties of the College and Applied Science. Such appointment shall be for the term of one year only, but the fellow, for the time being, shall be eligible to reappointment from year to year upon like joint recommendation. Nominations should be made to the President on or before April 1.

Duties of Tyndall and Barnard Fellows

It shall be the duty of a Barnard or John Tyndall fellow to devote himself faithfully to the investigation of some subject in physical science at this University, or at some other in this country or abroad, under the supervision of some known physicist approved by the President and the head of the department of Physics. He shall make a report quarterly to the President, giving an account of the work in which he has been engaged during the three months preceding; which report shall be certified by the physicist superintending and directing him. In case of failure faithfully to fulfil the obligations imposed upon him, such fellow shall forfeit all privileges and emoluments conferred upon him by his appointment to the fellowship, and the Council may at any time declare the fellowship to be vacant.

Drisler Fellowship

A fellowship known as the "Henry Drisler Fellowship in Classical Philology," of the annual value of \$500, was established in 1894 in commemoration of the semi-centennial in the service of the University of Henry Drisler, LL.D., of the Class of 1839, who held in the University the chairs of both Latin and Greek.

Applicants for this fellowship must be Bachelors of Arts of this University, or some other college or university of equivalent standing, and must have pursued the study of Greek and Latin throughout their undergraduate course. They must present testimonials from their instructors in Greek and Latin as to

their zeal and success in the study of these languages, and must give evidence of fitness for a wider and more profound study of the same, and for independent research. Such evidence may be shown by the results of a special examination, or by the production of an essay or published treatise in some department of classical study. Applicants must also have a sufficient knowledge of French and German to use those languages readily in the prosecution of their studies, and must present a certificate of good moral character.

The appointment to the fellowship will be made by the University Council on the joint recommendation of the professors of Greek and Latin. The appointment shall be for one year, and the holder, for reasons of weight, may be reappointed; but the fellowship shall not be held by the same person for more than three years.

The fellow must study at this University under the direction of the professors of Greek and Latin, unless permitted by the Council to spend a year in some foreign university or in the American School of Classical Studies at Athens.

Mosenthal Fellowship

This fellowship was established in 1898 in memory of the late Joseph Mosenthal, of New York City, and is designed to aid talented students of musical composition in the study of their art either here or abroad.

It is awarded every other year, and its value at each award is \$675.

The appointment to the fellowship will be made by the University Council on the recommendation of the Professor of Music.

The fellow must pursue his or her studies either at Columbia University or under the direction of some master approved by the President and Professor of Music. Applicants are required to have a thorough knowledge of harmony and the elements of counterpoint. This fellowship, which is open to both men and women, will be bestowed for the first time at Commencement, 1899. Applications shall be made prior to March 1, in writing, addressed to the President of Columbia University, on blanks prepared for the purpose, which will be sent upon request.

Schiff Fellowship

The Schiff Fellowship in Political Science, the gift of Mr. Jacob H. Schiff, and of an annual value of \$600, is open to graduates holding a first degree from any college or scientific school of good standing either in this country or in Europe. Appointment to the fellowship is made each year by the University Council upon the recommendation of the Faculty of Political Science, and the recommendation of this faculty is based upon the nomination following: On or before April 1 of each academic year the Faculty of Political Science shall propose to Mr. Jacob H. Schiff while living the name of a suitable person for nomination by him. After Mr. Schiff's death, his oldest living male descendant bearing his family name is to enjoy the right to nominate in the same manner. Should the family name become extinct, the right of nomination is to inhere in the oldest direct descendant of Mr. Schiff, bearing any other name, who is a resident of the United States. Should no nomination be made by Mr. Schiff or his successor after proper notification by the Faculty of Political

Science, the President of the University is to have the right to nominate. Should the recommendation made by the faculty be unacceptable to the person having the right of nomination, the faculty shall propose other names until a nomination is made.

Class of '70 Fellowship

There is a fellowship known as the "Class of '70 Fellowship," of the annual value of \$500, which, after the expiration of the term of the present incumbent, shall be filled by the Council, and shall be subject to such rules and regulations, not inconsistent with the Statutes, as may be prescribed by the Council.

Annual Fellows

The Treasurer may receive gifts of money for fellowships to run for one year or more, provided that no fellowship shall be created for less than \$500, per annum. Such fellowship shall be filled by the University Council, and shall be subject to such rules and regulations, not inconsistent with the Statutes, as may be prescribed by the Council.

University Scholarships

Thirty university scholarships are awarded annually to students in the Faculties of Political Science, Philosophy, and Pure Science. These scholarships are awarded under the following regulations, prepared by the authority of the University Council and with its approval :

1. The university scholarships are open to all graduates of colleges and scientific schools whose course of study has been such as to entitle them to be enrolled at Columbia as candidates for a university degree.

2. These scholarships are tenable for one academic year, with a possibility of renewal for one year longer. They are of an annual value of \$150 each.

3. Payments will be made to university scholars in two equal instalments ; one on October 1 and one on February 1. University scholars will be required to pay all of the fees established for matriculation, tuition, graduation, and for the use of the gymnasium.

4. Applications for university scholarships should be made in writing, on blanks that will be furnished for the purpose, and addressed to the President of Columbia University. Applications must be filed not later than May 1. Should an unsuccessful applicant for a fellowship apply for a scholarship, the only information required from him will be that contained in the formal application for the fellowship.

5. The university scholarships will be awarded by the University Council at its regular meeting in May. The award will be made after applications have been examined and recommendations made by the Standing Committee on University Fellowships. In making these recommendations the Committee will give preference to those candidates for university fellowships who have failed of appointment by the University Council after having been recommended for the same by any faculty or department.

6. University scholars will be required to enroll themselves as candidates for a degree and to pursue a regular course of study leading thereto.

President's University Scholarships

In addition to the university scholarships, during the present academic year there are six scholarships; and from and after July 1, 1899, there will be eight scholarships, each of the annual value of \$150, which shall be known as the "President's University Scholarships." Such scholarships, which shall be for the term of one year, shall be filled by the University Council, and shall be governed in all respects by the regulations attached to the university scholarships established by the preceding section, and by such further regulations as may from time to time be hereafter adopted by the Trustees. The holders of such scholarships may be reappointed upon the expiration of their terms upon such conditions as may be prescribed in the regulations. In case any one of said scholarships is not awarded in any year, or in case any scholarship shall become vacant otherwise than by the graduation of the incumbent, an additional scholar may be appointed to fill such vacancy. The recipient of any such scholarship may, with the consent of the President, assign the income thereof to any properly qualified candidate without waiving his right to be designated as a President's University Scholar.

Pulitzer Scholarships

In 1893, the Hon. Joseph Pulitzer established a fund of \$100,000 to enable deserving graduates of the New York City grammar schools to obtain a high-school preparation for college through the agency of Columbia College. Ten students a year are selected by competition for the Horace Mann School of Teachers College, and these students as they are qualified for work in the University are given free tuition for four years either in the College or in any of the schools except the Medical School. During the entire term of their high-school and college or university course, each of these students receives from Mr. Pulitzer the sum of \$250 per annum. For details in relation to the competition for these scholarships, address the Principal of the Horace Mann School, 120th Street, Morningside Heights, New York City.

National Society of the Sons of the American Revolution Medal

The National Society of the Sons of the American Revolution offers a silver medal under the following regulations:

1. Competition shall be open to members of the senior class in the College, and to first-year students, not graduates of the College, studying under any of the faculties of the University.
2. Each essay must contain not less than 1600 and not more than 2000 words and shall be upon the subject: "The Principles Fought for in the War of the Revolution."
3. A typewritten copy of each essay must be presented to the President not later than May 1.
4. The Committee of Award shall consist of the professors giving instruction in American History.
5. The prize shall in no case be awarded to an essay defective in English composition.

The award, if made, will be announced by the President at Commencement.

A similar tender has been made to the principal colleges of the country, and the essays receiving the silver medals will be submitted to a committee of the National Society in competition for a gold medal to be awarded to the writer of the essay deemed most meritorious.

Bunner Medal

The H. C. Bunner Gold Medal, provided for by the interest upon a fund of one thousand dollars, established in November, 1896, by the friends of the late Henry Cuyler Bunner, is awarded annually at Commencement to the candidate for a Columbia degree who shall present the best essay on an assigned subject in American Literature. Essays must be submitted to the President on or before May 1. The award will be made by a committee to be appointed by the President. The subject for the essay to be handed in May 1, 1899, is "Daniel Webster as an Orator"; for 1900, "The American Indian in American Poetry"; for 1901, "American Humor prior to 1870."

The College

Alumni Scholarships

Four scholarships, known as the "Alumni Scholarships," are awarded upon the nomination of the Association of the Alumni of Columbia College.

Alumni Competitive Scholarship

A scholarship, known as the "Alumni Competitive Scholarship," tenable for the course of four years, is awarded annually to the student passing the best entrance examination.

Scholarships of the Society for the Promotion of Religion and Learning

Two scholarships in each class (eight in all) are awarded upon the nomination of the Society for the Promotion of Religion and Learning in the State of New York.

Moffat Scholarships

Two scholarships endowed by William B. Moffat, A.B. '38, M.D. '42, known as the "Moffat Scholarships," are awarded upon the nomination of the personal representatives of the founder.

Schermerhorn Scholarships

Five scholarships endowed by John Jones Schermerhorn, A.B. '25, known as the "Schermerhorn Scholarships," are awarded upon the nomination of the nearest living male relative of the founder.

General Theological Seminary Scholarship

The scholarship in the General Theological Seminary of the Protestant Episcopal Church (heretofore placed at the disposal of the Trustees of Columbia University by the Society for Promoting Religion and Learning in the State of New York) is awarded upon the following conditions, to wit :

a. All candidates shall comply with the requirements for admission of the General Theological Seminary, and as candidates for the ministry of the Protestant Episcopal Church, and must have taken the degree of Bachelor of Arts and have been graduated with honors.

b. All candidates shall report themselves to the Educational Committee of such Society at least three months previous to the examination to be held by the faculty for the purpose of awarding such scholarship.

Brooklyn Scholarships

Twelve scholarships, founded by the Trustees in 1895 in recognition of the gift to the University by President Low of a memorial building for the University Library, are open for competition to candidates for admission to the College who are residents of Brooklyn, N. Y., and have received their training in either the public or the private schools of that city. Three of these scholarships are awarded annually, to the three qualified competitors who are examined at the College in June and pass complete entrance examinations in all subjects. The papers of the competitors who pass without conditions will be examined by the Committee on Admissions; and the three students whose papers as a whole are entitled to the highest rank will receive the scholarships.

Each scholarship entitles its holder to receive the sum of \$150 per annum during the college course; but if he fail to maintain a standing of at least grade C in all of the courses pursued by him, or if he commit any breach of good order, he shall forfeit the scholarship.

Should any recipient desire, he may, with the consent of the faculty, while still retaining the title "Brooklyn Scholar," transfer to any other properly qualified candidate from Brooklyn the income from the scholarship; and such action on his part will not be made a matter of public record.

All persons intending to compete for these scholarships must submit satisfactory certificates of character and proficiency from the schools which they have last attended, and must state in writing that it is their intention to spend at least one year at Columbia College.

Stuart Scholarships

Two scholarships known as the "Stuart Scholarships," endowed in memory of Sidney Barculo Stuart, Class of '80, Columbia College, and Eugene Talman Stuart, Class of '81, Columbia College, by their grandmother, Cornelia A. Atwill, October, 1895, are awarded upon the nomination of the founder during her lifetime, and after her decease by the President of the University and the Dean of the College on such terms and conditions as they may from time to time impose.

Hewitt and Harper Scholarships

There are two scholarships known as the "Hewitt Scholarships," endowed by the gift of Abram S. Hewitt, LL.D., Class of '42, and two scholarships known as the "Harper Scholarships," endowed by the bequest of Joseph W. Harper, A.M., Class of '48. Each of these scholarships is of the annual value of \$150. They are open for competition to graduates of the New York City

high schools under such regulations as the Faculty of the College shall establish, and the Trustees shall from time to time approve, and shall be awarded from year to year after the final annual examinations by such faculty. The holders thereof shall pay the tuition fee and all other fees. One of such scholarships shall be offered for competition in each class, but in case any one of such scholarships is not awarded in any class, or in case any such scholarship shall become vacant otherwise than by the graduation of the incumbent, an additional scholar may be appointed to fill such vacancy. The recipient of any such scholarship may waive the stipend without waiving his right to be designated as a "Hewitt Scholar" or "Harper Scholar," as the case may be, and the faculty may then appoint an additional scholar in his place.

Faculty Scholarships

Scholarships are awarded to the sons of members of the several faculties.

Prize of the Alumni Association

A prize of fifty dollars in money or its equivalent, at the option of the receiver, established by the Association of the Alumni of Columbia College, was first awarded at the Commencement in June, 1858. It is given "to the most faithful and deserving student of the graduating class."

Three names are selected by the faculty and submitted to the class, who from these three designate one to receive the prize. Should the class at any time fail to make the selection, and give notice thereof to the President of the University at least ten days prior to the day appointed for Commencement, the selection of the student to receive the prize may be made by the faculty.

General Theological Seminary Prizes

Two Annual Seminary Prizes were founded in November, 1851, by the Rev. Dr. John McVickar, through the Society for Promoting Religion and Learning, and for which an endowment of \$1000 is provided on the following conditions:

1. The first, to be entitled "The Society's Greek Seminary Prize of Thirty Dollars," to be annually competed for among such members of the graduating class as shall have given in their names to the President, at least one month previous to such competition, as candidates for the General Theological Seminary of the Protestant Episcopal Church, each student giving in his name as competitor to designate the prize for which he contends, and to be confined to the choice then made. The examination for such prize to be held publicly in the chapel, and separate from the general examination. To be on:

- a.* The Epistles of the New Testament (in Greek) "ad aperturam libri."

- b.* On some one of the early Greek Fathers, to be designated at the time of noticing the prize, or, if none be designated, then upon some portion of Chrysostom or Athanasius, at the choice of the student.

The decision to be with the President and the Professor of Greek.

2. The second, to be entitled "The Society's English Seminary Prize of Twenty Dollars," to be annually competed for as before, and to consist in the production of an essay (to be publicly read or not, as the President may deter-

mine), of the ordinary length of a pulpit discourse, on some subject connected with the course of evidences on which the class has been engaged ; such subject to be selected by the professor of the evidences, and given out by him at the time of notice ; and the prize to be adjudged as before, by the President and the professor of that branch ; such decision to have respect to

- a. The general ability and soundness of the essay ;
- b. Its logical and demonstrative form ; and
- c. The pure Saxon style and idiom in which it is written.

The names of the successful candidates to be enrolled in a suitable book to be provided for that purpose, lettered appropriately, and kept on the library table ; to be announced with other honors on Commencement Day, and also recorded honorably in the Society's books.

Chanler Historical Prize

In 1877, J. Winthrop Chanler, A.B. '47, bequeathed " to the Trustees of Columbia College in the City of New York the sum of one thousand dollars, to be invested and kept invested, and the income thereof to be given annually, on Commencement Day, to the undergraduate member of the senior class of said College who shall be the author of the best original manuscript essay in English prose on the history of civil government in America, or some other historical subject, the same to be determined by the judgment and decision of the faculty of said College." The bequest became available in 1879.

The subject for the present year is " The Causes and Consequences of the Texas Uprising of 1833 to 1836." The competitive essays must be handed to the President on or before May 1.

College of Physicians and Surgeons

Fellowships of the Alumni Association

In June, 1891, the Trustees, at the request of the Alumni Association of the College of Physicians and Surgeons, established three fellowships to be known as the " Fellowships of the Alumni Association of the College of Physicians and Surgeons," the provision for which is made annually by the Association.

These fellowships are open to graduates of the College of Physicians and Surgeons who have shown special aptitude for scientific research in the departments of Anatomy, Physiology, or Pathology. They are held for a period of two years and have an annual value of \$500 each. The appointments to these fellowships are made by the Executive Committee of the Alumni Association from candidates presented to them by the Professor of Anatomy, the Professor of Physiology, and the Professor of Pathology.

The persons appointed to these fellowships are expected to devote themselves to scientific research in the department which they may elect, in this country, either in the schools of Columbia University, where they enjoy free tuition and the privileges of the laboratories, or in other institutions at their own expense. At the end of two years the holders of these fellowships are expected to present to the Association a thesis containing evidence of independent or original work in their special department.

Alonzo Clark Scholarship

By the will of the late Alonzo Clark, M.D., LL.D., for many years President of the College of Physicians and Surgeons, and Professor of Pathology and Practical Medicine, it has been placed in the power of the Medical Faculty to bestow a scholarship, with an income of about seven hundred dollars a year, for the purpose of promoting the discovery of new facts in medical science.

Harsen Prizes for Clinical Reports

Three annual prizes, founded in 1859, by the late Jacob Harsen, M.D., who was graduated from the College in 1825 and from the College of Physicians and Surgeons in 1829, are offered for the three best reports, in writing, by students of the Medical School, of the clinical instruction given at the New York Hospital during any four consecutive months of the year which ends on Commencement Day.

These reports must embrace the clinical teaching of both the visiting physician and the visiting surgeon on duty.

Each report must be designated by a device or motto, and must be accompanied by a sealed envelope, bearing the same device or motto, and containing the name and address of the author.

The prizes are as follows :

A first prize of one hundred and fifty dollars ; a second prize of seventy-five dollars ; a third prize of twenty-five dollars.

A " Harsen Prize Medal " and a diploma are given with each prize.

Harsen Prizes for Proficiency at Examination

In consequence of the great increase in value of the Harsen Prize Fund, in addition to the three prizes above mentioned, there are awarded three Harsen prizes for proficiency at examination, viz.:

A first prize of five hundred dollars ; a second prize of three hundred dollars ; a third prize of two hundred dollars.

The award of these prizes is made as follows :

The ten members of each graduating class who, at their examination for the degree of Doctor of Medicine, have shown the highest proficiency in all the branches combined, receive each a diploma of " Examination Honors " and are entitled to take part in special competitive examinations, the three most meritorious competitors at which receive the first, second, and third prizes, respectively.

The competitive examinations consist :

1. Of an examination in writing, covering *all the branches* of medical teaching.

2. Of an examination upon the cadaver in *practical anatomy*, conducted by the Professor of Anatomy.

3. Of practical examinations in *clinical medicine* and *clinical surgery*, conducted at the hospitals by the Professors of Medicine and Surgery, respectively.

The relative merits of the competitors are decided, and the award of the prizes made, by a committee of three judges, consisting of the Dean of the College of Physicians and Surgeons, the President of the Association of the Alumni of the same, and a resident alumnus selected by them.

Alumni Association Prize

The Alumni Association Prize is a biennial prize of \$500 open for competition to the alumni of the College of Physicians and Surgeons. It is awarded for the best medical essay submitted upon any subject the writer may select, and is open to competition in alternate years with the Cartwright Prize.

If no one of the competing essays be deemed sufficiently meritorious, the prize is not awarded.

An essay in order to be held worthy of the prize must contain the result of original investigation made by the writer.

This prize is not awarded to any essay which is the work of more than one author, or which is at the same time submitted for another prize. Each competitor is required to send with his essay to the Prize Committee a statement that these requirements have been complied with.

Essays in competition for the prize to be awarded at Commencement, 1900, must be sent to the Secretary of the Alumni Association of the College of Physicians and Surgeons on or before April 1, 1900.

Competing essays must each be marked with a device or motto, and accompanied by a sealed envelope, similarly marked, containing the name and address of the author.

Cartwright Prize of the Alumni Association

The Cartwright Prize was endowed by a bequest of \$10,000 left by Benjamin Cartwright and consists of \$500, and is offered for competition in alternate years with the Alumni Association Prize.

It is awarded on the same terms as the latter, *except that it is open to universal competition*. Essays in competition for the prize to be awarded at Commencement, 1899, must be sent to the Secretary of the Alumni Association on or before April 1, 1899.

Stevens Triennial Prize

The Stevens Triennial Prize was established by the late Alexander Hodgdon Stevens, M.D., formerly President of the College of Physicians and Surgeons, on the following plan:

The prize, awarded triennially, consists of the interest yielded by the principal fund during three years, and amounts to \$200.

The administration of the prize is entrusted to a commission, consisting of the Dean of the Medical Faculty (*ex-officio*), the President of the Alumni Association of the College of Physicians and Surgeons (*ex-officio*), and the Professor of Physiology (*ex-officio*) in the same institution.

The prize is awarded to no essay unless it is sufficiently meritorious and includes the results of original research by the writer upon the subject chosen.

The competing essays must be sent in to the Dean of the College of Physi-

cians and Surgeons on or before the first day of January, 1900. Each essay must be designated by a device or motto, and must be accompanied by a sealed envelope, bearing the same device or motto, and containing the name and address of the author. The envelope belonging to the successful essay will be opened, and the name of the author announced, at the annual Commencement of the University in 1900.

The prize is open for universal competition.

Joseph Mather Smith Prize

The fund for the Joseph Mather Smith Prize was given by the relatives, friends, and pupils of the late Dr. Smith, as a memorial of his services as Professor of *Materia Medica* in the College of Physicians and Surgeons from 1826 to 1866. Under the provisions of the trust an annual prize of \$100 is awarded for the best essay (if sufficiently meritorious) on the subject of the year, presented by an alumnus of the College of Physicians and Surgeons. The competing essays should be sent to the Dean of the Medical Faculty on or before March 10, each essay signed with a device or motto, and accompanied by a sealed envelope, inscribed with the same device or motto, and containing the name of the author. The envelope of the successful essayist will be opened, and the prize awarded at the annual Commencement next following.

Schools of Mines, Chemistry, Engineering, and Architecture

Columbia Fellowship

A fellowship known as the "Columbia Fellowship in Architecture," established by the Trustees in recognition of the gifts of F. Augustus Schermerhorn, E.M. '68, to the department of Architecture, open to all graduates of the School of Architecture less than thirty years of age, is awarded under such rules and regulations as shall from time to time be determined by the President and the Professor of Architecture. Holders of such fellowships shall devote the income thereof to foreign study and travel in accordance with plans prepared by themselves and approved by the President and such professor, and shall upon return present a written report and exhibit drawings in the School of Architecture. Said fellowship shall be awarded in the spring of every even-numbered year, and payments thereof shall be made by the Treasurer, on the certificate of the Professor of Architecture, endorsed by the President, in four equal instalments of \$325 each on the usual quarter days.

McKim Fellowships

Two fellowships, known as the "McKim Fellowships in Architecture," endowed by gift of Charles F. McKim of \$20,000, are awarded upon like conditions and for like purposes as are specified in the foregoing section, but such fellowships shall be awarded in the spring of every uneven-numbered year, and payments thereof shall be made by the Treasurer, on the certificate of the Professor of Architecture, endorsed by the President, in four equal instalments of \$250 each on the usual quarter days.

Illig Medal

A prize known as the "Illig Medal," endowed by a bequest of \$2000 left by William C. Illig, E.M. '82, is awarded annually at Commencement, by a committee of the Faculty of Applied Science appointed by the President, to the student in the graduating class of one of the Schools of Mines, Chemistry, Engineering, or Architecture who shall present the best essay on a subject assigned by the faculty of such schools.

School of Political Science**Prize in Political Economy**

An annual prize of \$150 for the best essay on some subject in political economy has been established by Mr. Edwin R. A. Seligman, of the Class of 1879. Competition for the prize is open to all members of the School of Political Science. The topic selected must be approved by the faculty, and the essay itself must not be less than twenty thousand words in length.

Bennett Prize

A prize of \$40, to be given on Commencement Day, has been established by Mr. James Gordon Bennett. The prize is awarded by the Faculty of Political Science for the best essay in English prose upon some subject of contemporaneous interest in the domestic or foreign policy of the United States, the subject for the present year being "How should the United States Govern Porto Rico?" The competition is open to seniors in the College, whether regular or special students, and to all students under any of the faculties of the University, who have not yet taken the baccalaureate degree in arts, letters, or philosophy, provided that they take courses amounting to six hours a week throughout the year in the School of Political Science. Essays must be submitted to the President on or before May 1. If no satisfactory essay is received no award will be made. No award will be made for any essay that is defective in English composition.

Toppan Prize

A prize known as the Robert N. Toppan prize, of \$150, maintained by Robert N. Toppan, LL.B. '61, is awarded annually to the member of the School of Political Science who shall pass the best written examination upon a paper prepared by the professor in charge of the department of Constitutional Law.

Prize Lectureships

The Trustees have established in the School of Political Science three prize lectureships of the annual value of \$500 each, tenable for three years. The power of appointment is vested in the Faculty. One of these three lectureships becomes vacant at the close of each academic year. The previous holder may be reappointed. The conditions of competition are as follows:

1. The candidate must be a graduate of Columbia University in the School of Political Science or the School of Law. In the latter case he must have pursued the curriculum of the School of Political Science for at least two years.

2. He must be an active member of the Academy of Political Science.

3. He must have read at least one paper before the Academy of Political Science during the year next preceding the appointment.

The duty of the lecturer is to deliver annually, before the students of political science, a series of at least twenty lectures, the result of original investigation.

Fellowship Regulations

No fellow shall be allowed to accept remunerative employment except by permission of the President, and the acceptance of any such employment, without such permission, shall operate to vacate the fellowship.

All fellows, except as hereinbefore provided, shall be required to pursue their studies during the term of their fellowship at the University, unless permission be granted by the President to study elsewhere.

All fellows shall be governed by such rules and regulations, not inconsistent with the statutes, as may be prescribed by the Council.

Barnard Medal

A gold medal established by the provisions of the will of President Barnard and endowed by him, known as the "Barnard Medal for Meritorious Service to Science," is awarded at Commencement at the close of every quinquennial period dating from the 17th day of July, 1889, to such person, if any, whether a citizen of the United States or of any other country, as shall within the five years next preceding have made such discovery in physical or astronomical science, or such novel application of science to purposes beneficial to the human race, as in the judgment of the National Academy of Sciences of the United States shall be esteemed most worthy of such honor.

Award of 1895

LORD RAYLEIGH, F.R.S. PROFESSOR WILLIAM RAMSAY, F.R.S.

Loubat Prizes

Mr. Joseph F. Loubat has established, at Columbia University, two prizes, a first prize of \$1000, and a second of \$400, for the best works published in the English language upon the history, geography, archæology, ethnology, philology, or numismatics of North America. The competition for these prizes is open, under the deed of gift, to all persons, whether connected with Columbia University or not, and whether citizens of the United States or of any other country. No treatises shall be eligible for the purposes of the competition except such as relate to the topics involving antiquarian research, or that refer to events prior to 1776. In order to insure consideration of their works, authors are invited to send copies to the President

of Columbia University, not later than April 1 of the year in which the prize is to be awarded; but the competition will not be restricted to works thus submitted. Copies of the regulations adopted by the Trustees can be obtained from the Secretary of the University.

Mr. Loubat has provided a permanent endowment for these prizes, which will make it possible to award them at least every five years. It has been decided to divide the above list of subjects into two groups, in which the award will be made alternately. These groups consist, respectively, of history, geography, and numismatics; and of archæology, ethnology, and philology. It has also been decided that, hereafter, Mr. Loubat's foundation shall be employed to stimulate research and not simply to reward the authors of meritorious works published without reference to these prizes. That is, the University will call for the investigation of certain questions and the publication of the results, and the best works produced in answer to this call, if of sufficient value, will receive the prizes. The awards to be made in 1903 shall be conferred for works relative to subjects in the first group. One or more special topics of investigation may be recommended, and the awards limited primarily to works upon such topic or topics. But if no works upon the topics suggested seem worthy of an award, the prizes will be adjudged to the best works falling within the general group of subjects designated for the period.

It is hoped that Mr. Loubat's generous foundation may serve to encourage American research in a field that is peculiarly our own, but in which much of the best work has hitherto been done by strangers.

Award of 1893

First Prize, HENRY ADAMS, for his "History of the United States of America during the Administrations of Jefferson and Madison."

Second Prize, A. F. BANDELIER, for his "Report of Investigations among the Indians of the Southwestern States."

Award of 1898

First Prize, WILLIAM HENRY HOLMES, for his work entitled "Stone Implements of the Potomac—Chesapeake Tidewater Province."

Second Prize, FRANZ BOAS, Ph.D., for his monograph entitled "The Social Organization and the Secret Societies of the Kwakiutl Indians."

Grant Squires Prize

A prize known as the "Grant Squires Prize," consisting of the income to be derived from the fund heretofore established by Grant Squires, A.B. '85, LL.B. '87, is awarded at Commencement at the close of every quinquennial period, dating from July 1, 1895, to such graduate conducting an original investigation of a sociological character as shall be adjudged most worthy by a Committee of Award, consisting of the President, the Professor of Sociology, and one of the professors of Political Economy, appointed by the Faculty of Political Science. Such award shall be deemed to be a recognition of scientific ability and achievement, as well as an encouragement of research.

SPECIAL FUNDS

The following funds have been given to the Trustees from time to time and are held by them for the purposes specified :

GEBHARD FUND :

Bequest of Frederick Gebhard of \$20,000, for the endowment of a Professorship in the German Language and Literature. 1843.

FUND OF THE SOCIETY FOR PROMOTING RELIGION AND LEARNING :

Gift (through Professor McVickar) of \$1,000, for the endowment of two prizes. 1852.

" The Society's Greek Seminary Prize," and

" The Society's English Seminary Prize."

Statutes, Ch. VIII, Sec. 7.

SAMSON SIMSON FUND :

Bequest of Samson Simson, Class of 1800, of \$1,000, applied to the endowment of a fund for the purchase of law books. 1857.

HARSEN FUND :

Bequest of Jacob Harsen, M.D., Class of 1825, of \$31,114.10, for the endowment of prizes to be awarded to students in the College of Physicians and Surgeons. 1859.

" Harsen Prizes."

Statutes, Ch. X, Secs. 8, 9.

MOFFATT FUND :

Bequest of William B. Moffatt, M.D., Class of 1838, of \$2,000, for the endowment of scholarships. 1862.

" Moffatt Scholarships."

Statutes, Ch. XVIII, Sec. 5.

STEVENS FUND :

Gift of Dr. A. H. Stevens, Professor of Surgery, 1860-1867, of \$2,051.44, for the endowment of a prize. 1866.

" Stevens Prize."

Statutes, Ch. X, Sec. 12.

JOSEPH MATHER SMITH FUND :

Subscription fund of \$2,527.25, as a memorial of Dr. Smith, for the endowment of a prize in the College of Physicians and Surgeons. 1874.

" Joseph Mather Smith Prize."

Statutes, Ch. X, Sec. 13.

CHANLER FUND :

Bequest of John Winthrop Chanler, Class of 1847, of \$1,000, for the endowment of an essay prize. 1877.

" Chanler Historical Prize."

Statutes, Ch. VIII, Sec. 8.

SCHERMERHORN FUND :

Bequest of John Jones Schermerhorn, Class of 1825, of \$5,000, for the endowment of scholarships. 1877.

" Schermerhorn Scholarships."

Statutes, Ch. XVIII, Sec. 6.

JOHN MCKEON FUND :

Bequest of John McKeon, Class of 1825, of \$1,000, applied to the endowment of a fund for the purchase of law books. 1885.

TYNDALL FUND :

Gift of John Tyndall, LL.D., Professor of Natural History in the Royal Institution of Great Britain, of \$11,000, for the endowment of a fellowship in Physics. 1885.

"John Tyndall Fellowship for the Encouragement of Research in Physics." Statutes, Ch. XVII, Sec. 3.

ALONZO CLARK SCHOLARSHIP FUND :

Gift of \$14,000 as a memorial of Alonzo Clark, President of the College of Physicians and Surgeons, 1875-1884, for the endowment of a scholarship. 1887.

"Alonzo Clark Scholarship." Statutes, Ch. X, Sec. 14.

MCKIM FUND :

Gift of Charles F. McKim of \$20,000, for the endowment of travelling fellowships in Architecture. 1889.

"McKim Fellowships." Statutes, Ch. XVII, Sec. 6.

F. A. SCHERMERHORN FUND :

Gifts of F. Augustus Schermerhorn, Class of 1868, to the School of Architecture, applied to the endowment of a travelling fellowship in Architecture. 1889.

"Columbia Fellowship." Statutes, Ch. XVII, Sec. 6.

BARNARD FUND FOR THE INCREASE OF THE LIBRARY :

Bequest by President Barnard of \$62,086.21, and augmented by a bequest by his widow, Margaret M. Barnard, of \$15,889.41, to endow a fund for the purchase of books, especially those relating to physical or astronomical science, and for the award of a medal for discovery in physics or astronomy. 1889.

"Barnard Medal for Meritorious Service to Science."

Statutes, Ch. XVIII, Sec. 8.

BARNARD FELLOWSHIP FUND :

Bequest by President Barnard of \$10,000, for the endowment of a fellowship for encouraging scientific research.

"Barnard Fellowship for Encouraging Scientific Research." 1889.

Statutes, Ch. XVII, Sec. 4.

DA COSTA FUND :

Bequest of Charles M. Da Costa, Class of 1855, Trustee, 1886-1890, of \$100,167.50, applied to the endowment of the Da Costa Professorship of Zoölogy and the Da Costa Laboratory of Zoölogy. 1890.

SLOANE MATERNITY HOSPITAL FUND :

Gift of William D. Sloane and Emily Thorn Vanderbilt Sloane, of \$250,000, for the endowment of the Hospital. 1890.

VANDERBILT CLINIC FUND :

Gift of Cornelius Vanderbilt, William K. Vanderbilt, Frederick W. Vanderbilt, and George W. Vanderbilt, of \$115,000, for the endowment of the Clinic. 1890.

MARGARET M. BARNARD FUND :

Bequest of Margaret M. Barnard (the widow of President Barnard) of \$15,889.41, to augment the fund established by President Barnard.

1892.

LOUBAT PRIZE FUND :

Gift of Joseph F. Loubat of \$7,000, for the endowment of two prizes of \$1,000 and \$400 to be awarded once in every five years for the best work printed and published in the English language on the history, geography, archæology, ethnology, philology, or numismatics of North America.

1892.

"Loubat Prizes."

Statutes, Ch. XVIII, Sec. 15.

TROWBRIDGE FUND :

Gift of \$10,231.94, for the endowment of a fellowship in Engineering as a memorial of William P. Trowbridge, Ph.D., LL.D., Professor of Mining Engineering, 1877-1892.

1893.

"William Petit Trowbridge Fellowship in Engineering."

PULITZER FUND :

Gift of Joseph Pulitzer of \$100,000, for the endowment of scholarships.

1893.

"Pulitzer Scholarships."

BENNETT FUND :

Gift of James Gordon Bennett of \$1,028.75, for the endowment of an essay prize.

1893.

"Bennett Prize."

Statutes, Ch. XII, Sec. 8.

HAMILTON FISH FUND :

Bequest of Hamilton Fish, LL.D., Class of 1827, Trustee, 1840-93, of \$50,000. In recognition of this gift, the "Hamilton Fish Chair of International Law and Diplomacy" was so named.

1893.

HENRY DRISLER CLASSICAL FUND :

Gift of \$10,000, presented by Seth Low, LL.D., Class of 1870, in commemoration of the semi-centennial of Professor Drisler in the service of the College, for the endowment of a fund for the purchase of books and works of art for the Greek and Latin departments.

1894.

GRANT SQUIRES FUND :

Gift of Grant Squires, Class of 1885, of securities yielding an income of \$50, for the endowment of an essay prize.

1895.

"Grant Squires Prize."

Statutes, Ch. XVIII, Sec. 14.

ATWILL FUND :

Gift of Mrs. Cornelia A. Atwill of \$6,000, for the endowment of the "Stuart Scholarships" in memory of her grandsons, Sidney Barculo Stuart, Class of 1880, and Eugene Talman Stuart, Class of 1881.

1896.

"Stuart Scholarships."

Statutes, Ch. XVIII, Sec. 13.

ALEXANDER I. COTHEAL FUND FOR THE INCREASE OF THE LIBRARY :

Gift of Mrs. Samuel R. Lawrence and Mrs. James R. Swords of \$6,000 in memory of their brother, Alexander I. Cotheal, for the endowment of a fund for the purchase of books in the Oriental languages, or relating to Oriental subjects. 1896.

ROBERT CENTER FUND FOR INSTRUCTION IN MUSIC :

Gift of Mrs. Mary Elizabeth Ludlow of real estate and securities valued at \$110,000, for the endowment of a fund for instruction in music as a memorial of her son, Robert Center, applied to the maintenance of a professorship. 1896.

STUDENTS' LOAN FUND :

Gift of Jacob H. Schiff of \$5,000, for the aid of needy students. 1896.

H. C. BUNNER FUND :

Gift of \$1,000, for the endowment of an essay prize. 1896.
 " H. C. Bunner Medal." Statutes, Ch. XVIII, Sec. 16.

ILLIG FUND :

Bequest of William C. Illig, Class of 1882 (S. of M.), for the endowment of an essay prize. 1897.
 " Illig Prize." Statutes, Ch. II, Sec. 9.

PRIVILEGES IN OTHER INSTITUTIONS OPEN TO STUDENTS OF COLUMBIA UNIVERSITY

American Museum of Natural History

The American Museum of Natural History places its collection at the service of advanced students of Columbia University for the purposes of study and research and provides them with the necessary facilities for work.

Metropolitan Museum of Art

The Metropolitan Museum of Art admits students of Columbia University to the Museum on presentation of their matriculation cards, and gives them permission to draw, sketch, or copy objects in the Museum ; the curator of the department in which the student desires to work furnishing him with cards for the work.

Objects may be removed temporarily from exhibition for the purpose of special study, and students are allowed to study these objects in rooms specified for the purpose.

Union Theological Seminary

The Union Theological Seminary admits, without fee, such students of high standing in the senior year of Columbia College and in the graduate department of the University, as may be recommended by the President, to such lectures in the regular courses of the Seminary as may be agreed upon by the faculty of the Seminary and the President of Columbia University, and also any students of high standing in the graduate department of Columbia University recommended by the President, to any optional or special classes, subject to the approval of the faculty of the Seminary.

The privileges of the library of the Seminary, for reference, are open to all students of Columbia University on recommendation of the President. Reciprocal advantages are offered by Columbia to students of the Seminary.

Botanical Garden

Columbia University has the right to conduct university courses in botany at the New York Botanical Garden and to use the laboratories and floral material of the same, and all courses of instruction given there are open to the officers and students of the University without charge.

PUBLIC LECTURES

In addition to a number of public lectures of which the details are not arranged in advance, Columbia University maintains courses of lectures during the months of December, January, February, and March, as follows :

At the American Museum of Natural History, Saturday Evenings.

At Cooper Union, Tuesday Evenings.

At the Metropolitan Museum of Art, Saturday Mornings.

These lectures are open to the public without fee.

THE LIBRARY

GEORGE HALL BAKER, A.M.....	<i>Librarian</i>
CHARLES ALEXANDER NELSON, A.M.....	<i>Deputy Librarian</i>
WILLIAM G. BAKER.....	<i>Assistant Librarian</i>
JAMES THAYER GEROULD, A.B.....	<i>Assistant Librarian</i>
HARRIET B. PRESCOTT.....	<i>Catalogue Reviser</i>
HELEN E. BRAINERD.....	<i>Catalogue Reviser</i>
FREDERICK W. ERB.....	<i>Loan Desk Clerk</i>
EDWARD R. SMITH, A.B.....	<i>Custodian Avery Library</i>
WILLIAM H. SWITZER.....	<i>Law Librarian</i>

The Library is open daily from 8.30 A.M. until 10 P.M. All officers, students, and graduates of all departments of the University have free access to the Library and may draw books for home use. Undergraduates and alumni may draw books not exceeding three volumes in number for a period not exceeding two weeks, subject to renewal in proper cases.

Officers, students, and graduates of Barnard College and of Teachers College have corresponding privileges, and the Library of Teachers College is open, on similar terms, to persons connected with the University. Officers of the New York University and of the College of the City of New York have been granted the same privileges in the Library as alumni of Columbia University.

Persons not connected with the University, who have occasion to use the Library for purposes of study, and who are responsibly introduced to the Librarian, are given the privilege of using the Library in the building.

The reference library of about 10,000 volumes consists of a carefully selected body of reference books and of the most important works on all subjects in standard editions, representing the leading authors in all literatures.

Connected with the stacks in which are stored the books relating especially to the departments of Philosophy, Education, Literature, and Philology, the Sociological and Economic Sciences, Public Law, and History, are eighteen special study rooms open only to authorized readers. This arrangement is intended to give to advanced students and investigators in these fields the fullest opportunity to carry on their work by the use of a quiet room in the immediate vicinity of the literature of their subjects.

The reading-room of the Law Library occupies the middle of the north wing of the Library building, on the main floor. The law reading-room is the central feature of the law school, to whose uses the north wing of the building is devoted. The law reading-room is flanked on one side by the Dean's office, and on the other by the law students' conference room. Professors' rooms open from the gallery which runs around three sides of the reading-room. The Law Library is under the immediate charge of an experienced law librarian.

The Avery Architectural Library is a collection of about 16,000 volumes relating to architecture and the decorative arts, including many works on the fine arts. There is a special reading-room for this library and it is in charge of a special librarian.

The entire Library is carefully and accurately catalogued both by authors and subjects. The catalogue is on cards accessible to the public. Competent reference librarians are on duty to render any needed assistance to readers, whenever the Library is open.

The Library contains about 260,000 volumes, exclusive of unbound pamphlets and duplicates. The additions to the Library for the past five years have averaged over 18,000 volumes annually. The Library is well represented in all the subjects taught in the various courses of the University.

The Library contains a number of interesting and notable special collections. Among these may be mentioned the Phoenix Library, consisting of 7000 volumes, the gift of Stephen Whitney Phoenix of the Class of 1859; the Avery Architectural Library with 16,000 volumes devoted to architecture and the building and industrial arts; the Mary Queen of Scots Library, collected and given by General J. Watts de Peyster, containing 400 volumes; the collection of books by and about Goethe, containing 1200 volumes; and the Immanuel Kant Collection of over 600 volumes. A valuable possession of the Library is the Townsend Library of National, State, and Individual War Records.

The Library Council

The Library Council, as at present organized, consists of the President, the Librarian, and Professors Woodberry, Todd, and Jackson.

THE GYMNASIUM

WATSON L. SAVAGE, A.M., M.D.....	<i>Director</i>
GUSTAV H. BOJUS.....	<i>Instructor</i>
MARCELLUS T. HAYES, LL.B.....	<i>Secretary and Instructor</i>
CHARLES HOLROYD.....	<i>Instructor in Swimming</i>
WADE H. HAYES.....	<i>Clerk</i>

The Gymnasium is open daily during the academic year, except on Sundays and legal holidays, from 10 A.M. to 6 P.M. These hours are subject to modification in the light of experience.

The general exercising room is apsidal in shape, and measures on its axes 168 feet by 134 feet in the clear. The ceiling is 35 feet high, and the room is well lighted and well ventilated, both naturally and artificially. The arrangement of the apparatus is such that athletic, gymnastic, and calisthenic work can go on at the same time. The running track is 11 feet wide, with ends well raised for fast running, and measures $9\frac{1}{2}$ laps to the mile. On a floor 22 feet above the exercising floor are rooms for fencing, boxing, and hand-ball, 1,500 lockers made of steel and open wire, and 32 shower-baths. Below the exercising floor is a swimming pool, also apsidal in shape, measuring 100 feet by 50 feet on its axes. Around the pool are four large dressing and rubbing rooms, 42 individual dressing rooms of thick opaque glass, and 20 shower, needle, and tub baths. The pool contains about 200,000 gallons of water, which is filtered and, in winter, warmed. The depth is from 4 to 10 feet. The pool is illuminated by electric lights, placed around the edges beneath the surface of the water. On this floor is also a special training room for the crews, with separate bath and locker rooms for both the university and freshmen crews.

Every student, other than students of the College of Physicians and Surgeons, must pay annually a gymnasium fee of \$7.00. This covers the free use of the Gymnasium, a locker, and the baths, and includes all necessary laundry service. Officers, students in the College of Physicians and Surgeons, and alumni may use the Gymnasium upon the same terms.

Every student is entitled to a physical examination by the Director. His physical measurements will be recorded; his strength tested; his heart, lungs, eyes, and ears examined; and his general health inquired into. On the basis of this examination, advice will be given as to the kind and amount of exercise best adapted to his needs.

Two hours a week of work in the Gymnasium is prescribed for all members of the two lower classes in the College and the Schools of Applied Science, except special students and students holding degrees from other colleges.

The work prescribed for these classes has been arranged with a view to instructing students in the use of the apparatus provided and giving them the largest amount of the most suitable exercise. The movements are arranged in the most approved physiological order and are designed to exercise every part of the body without exhaustion. In addition, each student in these prescribed courses is given, without extra charge, an opportunity to learn the elements of the four principal arts of self-preservation,—boxing, fencing, wrestling, and swimming.

The prescribed work for freshmen and sophomores consists of (1) carefully arranged movements in classes, with musical accompaniment, free-hand exercises, and drills with dumb-bells, French wands, Indian clubs, iron wands, and chest weights; (2) progressive exercises, in graded squads, on the various heavy apparatus, such as horizontal, vaulting, and parallel bars, flying and swinging rings, german horses and bucks, ladders, tumbling, and the like; (3) gymnastic games that develop agility, coördination, and ability to think and act quickly. Students who cannot swim are also taught, in small squads. In addition, sophomores are taught the elements of boxing, fencing (cane defence), and wrestling, so that each student may know the guard for every blow, whether with fist or cane, and how to break any hold in "catch as catch can" wrestling.

In the prescribed courses students are marked upon the basis of attendance, effort, and knowledge of the subjects taught.

Optional classes, open to every member of the University, for exercises similar to those in the prescribed courses, are held every afternoon except Saturday, as follows: Monday, Wednesday, and Friday, mass exercises in light gymnastics; Tuesday and Thursday, squad exercises in elementary and advanced heavy gymnastics.

One or more of the instructors are on the floor at all times when the Gymnasium is open.

Rules Governing Students Participating in Athletics in Columbia University

To represent Columbia University in any public contest, a student must conform to the following rules:

Section I

RULE

1. He must be an amateur.
2. If a candidate for a degree, he must attend regularly all the exercises of his class.
3. If a special student, he must give evidence of good faith regarding his intention to remain a full year in the University. He must also take courses amounting to not less than ten hours a week and attend regularly the exercises in such courses.
4. Like other students, he must maintain satisfactory standing in his class. A student who does not maintain a satisfactory standing in one school of the University cannot, by entering another, alter his status as regards these rules.
5. He must not receive any form of remuneration; that is, he must not receive any pecuniary benefit whatsoever from his connection with any athletic team.
6. He must pass a physical examination satisfactory to the Director of the Gymnasium.
7. Students from other colleges or universities who have represented those institutions in any intercollegiate contest shall not be eligible to repre-

sent Columbia University until they have been in residence for at least one academic year.

Section II

Schedules for all games must be submitted to the Committee on Athletic Sports and approved by them.

Section III

No athletic association or class of the University shall enter a team or an individual in any public athletic contest so long as there is any outstanding indebtedness against the association or athletic interests thus represented.

DR. W. L. SAVAGE, *Chairman*,

PROF. J. F. KEMP,

PROF. F. R. HUTTON,

Committee on Athletics.

PUBLIC WORSHIP AND RELIGIOUS WORK

The chapel service is held every week-day, except Saturday, in Room 305, Schermerhorn, at 9.10 A.M. This hour, though early for those who live at a distance, has been found the most convenient all things considered. The service lasts fifteen minutes, in which time there are singing, reading the scriptures, prayers, and generally an address by the Chaplain. Attendance is wholly voluntary. All officers and students of the University are invited to be present, and those who profess and call themselves Christians are expected to give support to the services at least by their occasional presence.

Religious work accompanies religious worship. The Chaplain spends his morning hours in his office, No. 415 West, where at stated times he is glad to welcome any student who may wish to confer with him.

In West there is also a suite of rooms set apart for use of the University Young Men's Christian Association, under whose direction there are Bible Classes held each week, religious meetings conducted, and much good work of a practical character carried on among the students.

Mr. Albert Britt is Secretary of this organization, and is also associated with the committee having in charge the work of securing positions that will give remuneration to students wishing employment. He can be addressed at the Y. M. C. A. rooms, 409-413 West.

DEPARTMENTS OF INSTRUCTION

When an announced course has not been applied for by at least three students, candidates for a degree, the instructor shall be at liberty to withdraw the course.

The number of hours, unless otherwise specified, indicates the number of hours a week for the entire year.

Anatomy

GEORGE SUMNER HUNTINGTON, M.D.....	<i>Professor</i>
BERN BUDD GALLAUDET, M.D.....	<i>Demonstrator</i>
WILLIAM H. ROCKWELL, M.D.....	<i>Assistant Demonstrator</i>
GEORGE EMERSON BREWER, M.D.....	<i>Assistant Demonstrator</i>
FREDERICK JOHN BROCKWAY, M.D.....	<i>Assistant Demonstrator</i>
JOSEPH A. BLAKE, M.D.....	<i>Assistant Demonstrator and Alumni Association Fellow in Anatomy</i>
GEORGE W. CRARY, M.D.....	<i>Assistant Demonstrator</i>
HOWARD D. COLLINS, M.D.....	<i>Assistant Demonstrator</i>
WALTON MARTIN, M.D.....	<i>Assistant Demonstrator</i>
C. C. CARMALT, M.D.....	<i>Assistant Demonstrator</i>
ARTHUR S. VOSBURGH, M.D.....	<i>Assistant Demonstrator</i>

Courses

1—Vertebrate morphology—Anatomy of the body cavities—Visceral and topographical course—Thorax and abdomen. Lectures combined with demonstrations. 3 hours. Professor HUNTINGTON

Required, in the second year, of candidates for the degree of M.D.

2—Demonstrations to sections of the class—Cranial osteology and syndes-mology, myology, angiology of the head and neck and peripheral nervous system of the neck. 1 hour. Dr. BLAKE

Required, in the first year, of candidates for the degree of M.D. Elective, in conjunction with 3, 4, and 5, for seniors in Columbia College.

3—Demonstrations to sections of the class—Osteology, syndes-mology, myology, peripheral nervous system, and angiology of the extremities. 2 hours. Dr. BROCKWAY

Required, in the first year, of candidates for the degree of M.D. Elective for seniors in Columbia College, in conjunction with 2, 4, and 5.

These courses are so arranged as to maintain, with reference to the subjects treated, a direct connection with the laboratory course in dissection, No. 5.

4—Demonstrations to sections of the class.

(B) Preliminary visceral course—Anatomy of the viscera and body cavities. 1 hour.

This portion of the course is designed to afford that general instruction in the descriptive anatomy and the relations of the viscera which is indispensable for the understanding of the courses in the normal histology and physiology of the viscera. Dr. BREWER

Required, in the first year, of candidates for the degree of M.D. Elective for seniors in Columbia College, in conjunction with 2, 3, and 5.

5—Laboratory course—Dissection of the human body. 18 to 20 hours a week, at various hours, for from 3 to 5 periods of 4 weeks each. Professor HUNTINGTON, Dr. GALLAUDET, and the ASSISTANT DEMONSTRATORS OF ANATOMY

Required, in the first year, of candidates for the degree of M.D. Elective for seniors in Columbia College, in conjunction with 2, 3, and 4.

6—Laboratory course—Dissection of the human body. 10 to 12 hours a week for from 6 to 11 weeks. Professor HUNTINGTON, Dr. GALLAUDET, and the ASSISTANT DEMONSTRATORS OF ANATOMY

Required, in the second year, of candidates for the degree of M.D.

7—Demonstrations to sections of the class—Anatomy of the mouth, pharynx, and larynx—The auditory apparatus—The central nervous system. 3 hours. Dr. GALLAUDET

Required, in the second year, of candidates for the degree of M.D.

8—Demonstrations to sections of the class—Visceral anatomy—This course preserves an organic connection with Course 1, and presents for direct examination and demonstration the preparations serving to illustrate that course. 2 hours. Dr. MARTIN

Required, in the second year, of candidates for the degree of M.D.

9—Demonstrations to sections of the class—Anatomy of the cranial nerves. 1 hour for one half-year. Dr. MARTIN

Required, in the second year, of candidates for the degree of M.D.

10—Laboratory courses in animal morphology—No specified number of hours a week. Professor HUNTINGTON

Optional for qualified candidates for the degree of M.D. Open as major or minor courses to candidates for the degree of A.M. or of Ph.D.

Research

11—The laboratory of animal morphology is open for research, under the direction of the Professor, to advanced workers. Professor HUNTINGTON

12—Comparative morphology of the carpus—A comparative study of the carpus in vertebrates above fishes, with especial reference to the homologies of the components, their evolution and significance, and their mutual relations in amphibia, reptiles, birds, and mammals. Professor HUNTINGTON

13—Comparative morphology of the respiratory apparatus, in mammalia, sauropsida, and batrachia—Evolution of the composite mammalian lung from the air-sac. Morphology of mammalian bronchial tree. Construction of ter-

minal branches and end spaces. Skeletal and other modifications of the respiratory apparatus in birds. Professor HUNTINGTON

14—Comparative morphology of the central nervous system—Demonstration and laboratory course. Detailed work in brain of cod, frog, turtle, bird, and mammal. Professor HUNTINGTON

15—Comparative myology.

(a) Appendicular muscles.

(b) Ventro-appendicular muscles.

(c) Muscles of the foot.

Professor HUNTINGTON

16—Human and comparative morphology of the auditory apparatus—Professor HUNTINGTON

17—Comparative morphology of the upper respiratory passages, nares, larynx, epiglottis, syrinx—Professor HUNTINGTON

18—Comparative morphology of the uro-genital system—Professor HUNTINGTON

19—Cranial topography—Professor HUNTINGTON

This course is designed for advanced students possessing a knowledge of the gross morphology of the human brain.

Pre-requisite: Course 7 or its equivalent.

20—Comparative morphology of the heart and vascular system—Development and modification of the venous system in vertebrates. Professor HUNTINGTON

21—Comparative morphology of the alimentary tract and digestive glands—Anatomy of the peritoneum. Professor HUNTINGTON

22—Comparative morphology of the cæcum and ileo-colic junction in vertebrates—Detailed study of the modifications of the structures and their vascular and serous relations. Professor HUNTINGTON

23—Topography of the pelvic viscera, muscles, and fasciæ—Professor HUNTINGTON

24—Anatomical technology and museum methods—Professor HUNTINGTON

Open only to teachers and qualified post-graduate students.

25—Lecture course on comparative vertebrate morphology—Professor HUNTINGTON

A series of university lectures and demonstrations based on the material contained in the Morphological Museum is given annually.

These lectures are incorporated in Course 1, and deal with the comparative anatomy of the circulatory, respiratory, alimentary, and uro-genital systems of vertebrates, together with certain portions of the skeleton, as the pectoral and pelvic girdles. The lectures are open to students under the Faculty of Pure Science. Details of subjects and dates will be furnished on application to the department.

Courses 10 to 24 inclusive are open, as majors or minors, to candidates for the degrees of A.M. and Ph.D. ; to qualified candidates for the degree of M.D., as optional courses ; and to post-graduate students.

In all courses offered in morphology the work is designed to be laboratory exercises of at least two continuous hours' duration, at any one exercise, supplemented in certain courses by demonstration and study of material contained in the Museum of Human and Comparative Anatomy and in the study collections of the department.

The time required for the above courses, if offered as minors for the degree of A.M. or Ph.D., or if taken as optionals, is half a day per week from October to April.

The demands on laboratory space and teaching force render it necessary to limit the number of candidates admitted to these courses.

Fellowships

For the fellowships open to persons desiring to do special work under the Professor of Anatomy, see page 35.

Anatomical Laboratories

The laboratory facilities of the department of Anatomy are very complete. The large general dissecting-room accommodates from 390 to 546 students at a time, working in groups of five or seven, respectively, at one table.

The plant for the production of artificial cold by the anhydrous ammonia process has enabled the department, through the means offered for the indefinite preservation of fresh subjects by the cold-storage system, greatly to increase the amount of material available for laboratory work; and has also rendered it possible so to regulate the temperature of the general laboratory, that the work can be carried on without difficulty during the warmer months at the beginning and close of the academic year.

The laboratory for advanced morphological research occupies the third story of the new Anatomical building. Every facility for advanced and research work in morphology is here extended. The established connections of the department furnish abundant human and comparative material, both mature and embryonal. The private library of the Professor of Anatomy is at the disposal of advanced workers.

Museum of Human and Comparative Anatomy

Much work has been done in the formation of a Museum of Human and Comparative Anatomy, the ultimate design of which is to present, in as complete a manner as possible, a view of the evolution of the forms of animal life, and of their natural relations, both in series of natural groups, and in the comparative and relative position of organs and systems. Even the approximate attainment of this aim will require much time and work, but sufficient progress has been made to enable the department to offer great facilities for study and research. The collection, both as regards groups and the individual preparations, is designed for the illustration of both elementary and advanced courses, and is largely used in the instruction of the medical undergraduates and in advanced study and research. The new Anatomical building provides the opportunity for the further development of this invaluable portion of the de-

partmental equipment. The first and second stories of the new building are devoted to the Morphological Museum, and it is hoped that in the space thus provided the continued development of scientific anatomy, both for purposes of undergraduate instruction and of advanced research, will steadily proceed.

In addition to the museum collection proper the department is constantly adding to a large collection for advanced study and research.

A study-collection of human osteological preparations is so administered as to enable every student to take out the different osteological series and retain them for private study as long as required.

Anthropology

LIVINGSTON FARRAND, A.M., M.D.....	<i>Instructor</i>
FRANZ BOAS, Ph.D.....	<i>Lecturer</i>
WILLIAM Z. RIPLEY, Ph.D.....	<i>Prize Lecturer</i>

Of the courses in this subject, 1 and 3 are elementary in character and intended as general introductions to Ethnology and Anthropology. Courses 2, 4, and 5 are for advanced students, and candidates for higher degrees.

Courses

1—(a) Anthropology—General introductory course. Lectures, essays, and discussions. 2 hours. Dr. FARRAND

(b) Ethnology and geography—Lectures. 2 hours. Dr. RIPLEY

(a) and (b) are taken together and count as one course.

2—Anthropology—primitive culture. Lectures, papers, and discussions. 2 hours. Dr. FARRAND

3—Physical anthropology—General introductory course. Lectures, essays, and discussions. 2 hours. Dr. BOAS

4—Physical anthropology—the application of statistical methods to biological problems. Advanced course. Lectures, reports, and laboratory work. 3 hours. American Museum of Natural History. Dr. BOAS

5—North American languages—Seminar. Dr. BOAS

Equipment

There is a thorough equipment of ethnological and anthropological charts and maps, with skulls, casts, and masks of lower races, and material and instruments for work in anthropometry.

The anthropological section of the University Library is being rapidly enlarged, the journals in the subject are on file in the reading-room, and special efforts have been made to obtain back numbers of all the leading periodicals, the files of which are now practically complete.

The valuable collections of the American Museum of Natural History are available for the students of Columbia University and form a most important adjunct to the work of the department.

Architecture

WILLIAM R. WARE, LL.D.	.....	<i>Professor of Architecture</i>
ALFRED D. F. HAMLIN, A.M.	.....	<i>Adjunct Professor of Architecture</i>
FRANK DEMPSTER SHERMAN, Ph.B.	.....	<i>Adjunct Professor of Architecture</i>
MAXIMILIAN K. KRESS, A.M.	.....	<i>Curator and Lecturer in Architecture</i>
GRENVILLE T. SNELLING, S.B.	.....	<i>Instructor in Architectural Engineering</i>
CHARLES A. HARRIMAN	.....	<i>Instructor in Architectural Drawing</i>
CHARLES P. WARREN, A.M.	.....	<i>Tutor in Architectural Construction</i>
WILLIAM T. PARTRIDGE	.....	<i>Lecturer in Architectural Design</i>
HENRY F. HORNPOSTEL, Ph.B.	.....	<i>Assistant in Architectural Design</i>

The first three years are given to parallel courses in drawing and design, in history and ornament, and in mathematics, architectural engineering, specifications, and building materials, with exercises in the reading of French and German text-books and the writing of English. In the second and third years there are lectures on the theory of architecture and on the decorative arts. Many of these subjects are given in alternate years, two classes taking them together. In the fourth year the students have the choice of an advanced course in history and design, or of an advanced course in scientific and practical construction. These are identical with the university courses in these subjects, so that a student who selects one of these courses as an undergraduate may return and take the other as a university student.

Graduates of colleges, schools of science, and schools of architecture, and professional draughtsmen of mature age are received as special students, not candidates for a degree, into such courses as they are qualified to pursue.

In alternate years are awarded a travelling fellowship of the value of \$1300, established by the Trustees in recognition of the liberality to this department of Mr. F. A. Schermerhorn, and two travelling fellowships of the value of \$1000 each, the gift of Mr. C. F. McKim. Courses 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, and 15 are open as electives to seniors in the College.

Courses

1—Ancient architectural history. 3 hours, first year. Text-book: Reber's *History of Ancient Art*. Mr. KRESS

2—Mediæval architectural history—Byzantine, Romanesque, Gothic. 2 hours, first half-year, with reading of a French text-book by the first class and of a German text-book by the second class. 2 hours reports and criticisms, and 15 hours original research in library and drawing-room, second half-year. Exercises in historical design (see 15). Text-books: Corroyer, *L'Architecture Gothique*; and Hauser, *Styl-lehre des Mittelalters* (see 16). Every other year to the second and third classes together (alternating with 3). Given in 1898-99. Professor WARE and Mr. KRESS

3—Modern architectural history—The Renaissance, modern revivals, Oriental and American architecture. 2 hours, first half-year, with reading of a French text-book by the second class and of a German text-book by

the third class. 2 hours lectures, and 15 hours research in library and drawing-room, second half-year. Exercises in historical design (see 15). Text-books: Palustre, *L'Architecture de la Renaissance*; Hauser, *Styl-lehre Renaissance* (see 16). Every other year to the second and third classes together (alternating with 2). Given in 1899-1900. Professor HAMLIN and Mr. KRESS

4—The theory of architecture—In alternate years: (a) The theory of form, proportion, symbolism; (b) the decorative arts, stained glass, mosaic, fresco. Given in 1898-99. (c) The theory of color; (d) planning, composition, and style. Given in 1899-1900. 1 hour, second and third classes together. Professor WARE

5—History of ancient ornament—The decorative forms of Egyptian, Assyrian, Greek, and Roman art. 1 hour, first year. Professor HAMLIN

6—History of mediæval ornament—Byzantine and Gothic ornament. 1 hour. Every other year to the second and third classes together (alternating with 7). Given in 1898-99. Professor HAMLIN

7—History of modern ornament—Renaissance, Oriental, and modern ornament. 1 hour. Every other year to the second and third classes together (alternating with 6). Given in 1899-1900. Professor HAMLIN

8—The elements of architecture—Mouldings, the orders, pedestals, pilasters, pediments, intercolumniation, superposition, balusters and balustrades, arches and arcades, imposts, doors, windows, roofs, spires, steps, stairs, vaults, domes. Eighteen plates required. 3 hours, second half of first year. Professor SHERMAN

9—Drawing

(a) Architectural drawing, with brush, pencil, and pen. 13 hours, first year. Mr. HARRIMAN

(b) Free-hand drawing, with pencil, pen, and brush; sketching and drawing of ornament and the figure from lithographs, photographs, and casts; water-colors. About 2 hours a week throughout four years. Professor HAMLIN, Mr. HARRIMAN, and Mr. PARTRIDGE

(c) Historical drawing. 2 hours, first year. Ancient history, in connection with Course 1. Mr. KRESS

Second and third years, 15 hours, during part of the second half-year. In alternate years: Mediæval history in connection with Course 2. Professor WARE, Mr. KRESS, and Mr. PARTRIDGE. Modern history, in connection with Course 3. Professor HAMLIN, Mr. KRESS, and Mr. PARTRIDGE

(d) Sketches and measured drawings from buildings. Second and third years. Professor HAMLIN and Mr. PARTRIDGE

10—Projections, intersections, and shades and shadows. 3 hours, first half of first year. Twenty plates required. Professor SHERMAN

11—Perspective. 8 lectures, second year. Eight plates required. Professor WARE

12—Descriptive geometry, stercotomy (stone-cutting). 2 hours, fourth year. Twenty plates required. Professor SHERMAN

13—Specifications

- (a) 1 Masonry : stone-work, brick-work, plastering ; drainage ; fire-proofing.
- 2 Wood-work : carpentry, joinery, hardware, painting, glazing, roofing ; slow-burning construction ; heating and ventilation.
- 3 Iron-work : steel and iron construction, joints, framing, and bracing ; plumbing.

The class copy a model specification and are examined upon the lectures. 2 hours, third year. Mr. WARREN

- (b) 1 Building-stones, artificial stones, cements, asphalt, terra-cotta.
- 2 Growth and preservation of wood ; paints, glass.
- 3 Metals, fire-proofing.

2 hours, third year. Professor WARE, Professor CHANDLER, Professor ROOD, Professor MUNROE, Professor RICKETS, Professor MOSES, Professor KEMP, Professor PEELE, Professor CROCKER, Professor HAMLIN, Mr. SNELLING, and Mr. WARREN

14—Architectural engineering—(a) Analytical geometry : the differential and integral calculus. 2 hours, first year. (b) Analytical mechanics : statics, elementary dynamics. 3 hours, second year. Text-book : Lanza's *Applied Mechanics*. Professor SHERMAN. (c) Applied mechanics : foundations, retaining walls, walls, pillars, beams, trusses, arches, vaults, and domes. 6 hours, third year. Mr. SNELLING

15—Architectural design. 1 hour, first year ; 15 hours, first half of the second and third years. Problems in design : plans, elevations, sections, and details. Professor WARE, Professor HAMLIN, and Mr. PARTRIDGE

In the second year the problems involve special drill in the use of the orders ; in the third year in planning and composition (see 19).

In the second and third years the afternoons of the second half-year are mainly occupied by historical study ; but there are also a limited number of problems in historical design (see 2 and 3).

16—Archæology. 2 hours, first year, in French. Text-books : in alternate years, Corroyer, *L'Architecture Gothique* ; Palustre, *L'Architecture de la Renaissance*. 2 hours, second year, in German. Text-books : in alternate years, Hauser, *Styl-lehre des Mittelalters* ; Hauser, *Styl-lehre Renaissance* (see 2 and 3). Mr. KRESS

17—Architectural essays. 1 hour, first, second, and third years. Professor WARE

18—Advanced architectural history. 2 hours, fourth year. Reading and writing on special topics with illustrative drawings. Professor WARE

19—Advanced architectural design—Advanced problems in planning and composition. 25 hours, fourth year. Professor HAMLIN and Mr. HORN-BOSTEL

20—Advanced architectural engineering—Practical examples in applied mechanics, treated both graphically and analytically. Problems in constructive design. 15 hours, 15 hours practice, fourth year. Professor BURR, Professor WOODWARD, and Mr. SNELLING

21—Advanced practice—The study of building processes. 2 hours, fourth year. Mr. WARREN

22—University course in architectural history and design. 27 hours. Professor WARE, Professor HAMLIN, and Mr. HORNBOSTEL

23—University course in architectural engineering and practice. 30 hours. Professor BURR, Professor WOODWARD, Mr. SNELLING, and Mr. WARREN

These two university courses are identical with the fourth-year elective courses 18, 19, 20, 21. They are open to graduates of colleges and scientific schools who are qualified to take them, and to experienced draughtsmen.

Properly qualified candidates are received as special students for periods of two months at a time.

Equipment

The equipment of the department consists of about 16,000 photographs, about 900 books, a classified library of prints and plates, the Avery Architectural Library of about 13,500 volumes, a collection of MS. drawings from the *École des Beaux-Arts*, a collection of casts of architectural details from ancient and modern Roman buildings, a collection of building-stones, tools, and materials, and about 10,000 lantern-slides of architectural subjects. The Willard collection of architectural casts at the Metropolitan Museum is open to students every day and two evenings every week.

Astronomy

JOHN KROM REES, E.M., Ph.D.....	Professor
HAROLD JACOBY, Ph.D.....	Adjunct Professor
HERMAN STEARNS DAVIS, Ph.D.....	Tutor
GEORGE W. HILL, LL.D.....	Lecturer on Celestial Mechanics

Courses

1—General astronomy—This course is historical and descriptive, and is supplemented by visits to the observatory, where students are taught to locate the principal constellations, and are afforded opportunities to view the sun, moon, planets, nebulae, and stars. Reference books: Young's *General Astronomy*, Grant's *History of Physical Astronomy*, Clerke's *History of Astronomy during XIX Century*, and Clerke's *System of the Stars*. 2 hours. Professor REES, assisted in the observatory by Dr. DAVIS

Open to seniors in the College and to graduates. Offered as a minor for the degree of A.M.

2—Spherical and practical astronomy—This course consists mainly of the study and use of the sextant for time and latitude determinations, and of the transit instrument for time. Reference books: W. W. Campbell's *Hand-book of Practical Astronomy*, Doolittle's *Practical Astronomy*. 2 hours lectures and 2 hours observatory work. Professor REES and Dr. DAVIS

Open to seniors in the College who have taken Mathematics 6. Offered as a minor for the degree of A.M.

3—Geodesy—This course deals with the subjects named in the scheme of the Summer School in Geodesy. During the vacation the students are required to

attend the summer school for six weeks to learn the use of apparatus, as indicated by the following :

Use of the nautical almanac and American ephemeris.

Sextant observations for time and latitude.

Transit instrument for time.

Base-line measurements.

Angle measurements by "directions."

Determination of the azimuth of a line.

Barometric hypsometry.

Reference books : Campbell's *Practical Astronomy*, Clark's *Geodesy*, *United States Coast Survey Reports*, and Jordan's *Handbuch der Vermessungskunde*. 2 hours lectures first year and first half of the second year. Professors REES and JACOBY, and Dr. DAVIS

Required of students in the Civil Engineering and in the Sanitary Engineering courses during third and fourth years. The third-year work is offered as a minor for the degree of A.M. The fourth year, including summer-school work, is offered as a major for the degree of A.M. Open to seniors who have taken Mathematics 6.

4—Advanced spherical and practical astronomy—This course deals with the subjects of time, latitude, and longitude; use of equatorial and of zenith telescopes. Reference books : Chauvenet's (2 vols.) *Spherical and Practical Astronomy*, and Doolittle's *Practical Astronomy*. 2 hours lectures and 4 hours observatory work for 2 years. Professors REES and JACOBY

First year offered as a major for the degree of A.M. or a minor for the degree of Ph.D.

Two years' work offered as a major for the degree of Ph.D.

5—Theoretical astronomy—This course deals mainly with the theory of comet orbits and their calculation. Reference books : Klinkerfues' *Theoretische Astronomie* and Oppolzer's *Bahnbestimmung*. 1 hour, supplemented by computations, for 2 years. Professor JACOBY

First year offered as a major for the degree of A.M. or a minor for the degree of Ph.D.

Two years' work offered as a major for the degree of Ph.D.

6—Theory and method of reduction of photographic star plates—This course deals with the determination of star places from the photographic plates, and includes the subjects of stellar parallax and proper motion. 1 hour, with practical work, for 2 years. Professor JACOBY

First year offered as a major for the degree of A.M. or a minor for the degree of Ph.D.

Two years' work offered as a major for the degree of Ph.D.

7—The method of least squares, with applications to astronomy and to geodesy. 1 hour for 1 year. Professors REES and JACOBY

Offered as a major for the degree of A.M. or a minor for the degree of Ph.D.

8—Lectures on celestial mechanics—Elementary course. Follows the historical or chronological method. 1 hour for 1 year. Dr. HILL

Open to seniors and to graduates as a minor for the degree of A.M.

9—Advanced course in celestial mechanics. 1 hour for 1 or 2 years. Dr. HILL

Open to graduates as a major or minor for the degree of Ph.D. Also as a major for degree of A.M.

Equipment

The apparatus of the department consists principally of the following :

The Rutherford equatorial of 13 inches aperture with a correcting lens for photography.

Three transit instruments.

Two fine clocks and several chronometers.

Three chronographs.

Three-inch zenith telescope by Wanschaff of Berlin.

Measuring machines for photographs by Rutherford and by Repsold.

Personal equation machine.

Base-measuring apparatus.

Theodolites by Wanschaff of Berlin and Saegmuller of Washington, D. C., with micrometer microscopes reading to a second of arc.

The Library of the University is well supplied with the books relating to the work of the department.

Bacteriology

(See page 147)

Biology

(See page 175)

Botany

LUCIEN MARCUS UNDERWOOD, Ph.D.....	<i>Professor</i>
NATHANIEL LORD BRITTON, Ph.D.....	<i>Emeritus Professor</i>
HERBERT MAULE RICHARDS, S.D.....	<i>Instructor</i>
CARLTON CLARENCE CURTIS, Ph.D.....	<i>Tutor</i>
WALTER R. SHAW, Ph.D.....	<i>Tutor</i>
JOHN KUNKEL SMALL, Ph.D.....	<i>Curator of the Herbarium</i>

The courses in Botany are arranged with the intention of giving a broad general knowledge of the subject during the first year, and permitting some degree of choice during the second year; for those who continue the work as a graduate subject, the widest possible range of subjects is open to the student's choice. Course 1 can be elected by any student who has reached the sophomore year, and if the subject be pursued consecutively for three years, the candidate will be ready to enter upon research work as a major subject. Two years would be sufficient for this preparation if the candidate elected two courses in Botany during the second year. Courses 1-4, or their equivalent, together with Course 5 or Course 7, according as the trend is toward morphology or physiology, form the necessary preparation for commencing a major subject in Botany. Course 1, with any two additional courses or an equivalent, will be required as the necessary preparation for commencing a minor subject in Botany. Minor graduate courses will be arranged after conference with the head of the department.

Auditors will be admitted to any courses for which they may be prepared.

Courses 9-15 are primarily for graduate students.

Courses

1—Elementary botany—The general biological features of plants and the outlines of the evolution of plant types are considered ; special attention being given to the significance of morphological characters and the forces operative in their development. 2 laboratory sessions a week, including conferences. Professor UNDERWOOD and Dr. CURTIS

Open to those who have reached the sophomore year.

2—Comparative anatomy of vascular plants—An examination of the comparative morphology of the cell is followed by the study of the distribution of tissues, with special regard to their functions. 2 laboratory sessions a week, first half-year. Dr. CURTIS

Pre-requisite : Course 1, or its equivalent.

3—Plant physiology—A course in experimental physiology supplemented by selected readings and conferences. 2 laboratory sessions a week, first half-year. Dr. CURTIS

Pre-requisite : Course 1, or its equivalent.

NOTE—In this and other courses in vegetable physiology the nature of the work occasionally requires attendance at the laboratory at unusual times.

4—General morphology of cryptogams—Detailed study of some group or groups of the lower plants. 2 laboratory sessions a week, second half-year. Professor UNDERWOOD

This course naturally follows Course 2, to complete an elective for the year. Pre-requisite: Course 1, or its equivalent.

5—Botanical problems—Illustrating advanced methods of fixing, imbedding, sectioning, and staining. 2 laboratory sessions a week, second half-year. Dr. CURTIS

Pre-requisite : Course 2.

6—Economic botany—Study of plants useful to man as food, medicine, timber, and fibre. 2 hours lecture, or the equivalent in the laboratory. Professor UNDERWOOD

Pre-requisite : Course 1, or its equivalent.

7—Plant physiology—A continuation of Course 3, but with the added pre-requisite of Course 2. 1 lecture and 2 laboratory sessions, second half-year. Dr. CURTIS

8—Lectures on general botany—A brief systematic study of plant structure and function, and the characters and relations of the leading groups of plants. 2 lectures and assigned reading, first half-year. Professor UNDERWOOD

Required of first-year students in the Schools of Mines, and in the course in Civil Engineering.

9—The natural families of flowering plants—Study of the diagnostic characters of the leading families in biological sequence. Reference books : Engler and Prantl's *Natürliche Pflanzenfamilien* and Baillon's *Histoire des Plantes*. 1 hour conference and 2 laboratory sessions. Dr. SMALL

Pre-requisite: Course 2. Offered as a major for the degree of A.M. if preceded by Courses 1-5.

10—Special morphology of fungi—A study of the special morphology, polymorphism, and development of the fungi, including culture methods. Not less than 10 hours a week, including special field-work. Professor UNDERWOOD

Pre-requisite: Course 4. Offered as a major for the degree of A.M. if preceded by Courses 1-5.

11—Research in morphology—The investigation of special problems in morphology with particular relation to their bearings on phylogeny, and involving field and experimental work. Not less than 10 hours a week for three years (or with special work two summers in the field, two years). Professor UNDERWOOD

12—Research in plant physiology—Special problems connected with growth and nutrition will be assigned after conference. The department will provide ample facilities, however, in any special research that may be desired. Not less than 10 hours a week for three years (or with special work during two summers, two years). Dr. CURTIS

13—Comparative embryology—Beginning with the Angiosperms, the embryology of special forms is considered, tracing their ontogeny from the gametophyte to the differentiations of the primary systems of the sporophyte; this is followed by a similar study of types from lower classes in biological sequence. Not less than 10 hours a week for three years (or with special work during two summers, two years). Dr. CURTIS

14—Critical study of a family or genus of plants of not less than fifty species—The group may be selected from the entire range of the vegetable world, but will be selected with a view to the special opportunities for field observation or garden cultivation. Field, herbarium, and laboratory work. Not less than 10 hours a week for two years, with two summers in the field. Research. Professor UNDERWOOD

15—Collection, determination, and comparative study of the plants of some restricted area—Field, herbarium, and laboratory work. Not less than 10 hours for two years; field-work during two summers. Research. Professor UNDERWOOD

Courses 11-15 are offered as major courses for the degree of Ph.D. A proportionate amount of work in Courses 11-14 will be accepted as a major for the degree of A.M.

Equipment

The department of Botany occupies the third floor of Schermerhorn and the laboratories and lecture-rooms have been newly equipped for undergraduate and research work. A large general laboratory, lecture-room, library, and morphological and physiological laboratories are supplied with modern instruments for instruction and experiment. The courses of instruction are illustrated with extensive series of models, charts, and lantern-slides. Fresh material is supplied from the conservatory and aquaria. A sufficient number of standard works on the subject are reserved for students' use in the general laboratory, where they will be more directly available in connection with the laboratory practice.

By the agreement entered into between the University and the New York Botanical Garden, all the botanical collections and Library of the University (except such as are needed for undergraduate work) are to be deposited in the Museum of the Botanical Garden; the Garden on its part is to supply all the needed facilities for research work in morphology, physiology, and taxonomy. This combination of forces not only places the department of Botany within reach of material equipment and collections not before available, but opens up facilities for advanced work under conditions that are not excelled. As soon as the new museum building is ready for occupancy, much of the graduate work will be transferred to Bronx Park.

The Herbarium is accommodated for the present in the large general laboratory (502), and contains about 500,000 specimens, being one of the largest in America; additions are at present made to it at the rate of about 20,000 specimens a year. It comprises: (1) The collections accumulated by Dr. Torrey, which came into the possession of the University at his death in 1873. (2) The collections of Prof. C. F. Meisner of Basle, Switzerland, presented to the University about the time of Dr. Torrey's death by Mr. John J. Crooke. (3) The collections of Dr. A. W. Chapman of Appalachicola, Florida, presented by Mr. Crooke at the same time; this contains the types illustrating Dr. Chapman's *Flora of the Southern United States*. (4) The moss collection of the late C. F. Austin. (5) The moss collection of the late Dr. J. G. Jaeger, acquired in 1893. (6) Miscellaneous accumulations of spermatophytes, since Dr. Torrey's death, now making up more than one third of the whole collection. (7) A large series of algæ and fungi (largely European exsiccatae) recently acquired. The Herbarium is rich in types of species described by Dr. Torrey, Professor Meisner, Dr. Chapman, Dr. Asa Gray, Mr. Austin, Professor Britton, Dr. Rusby, and Dr. Morong. The various collections are all arranged in a single series, but each sheet is identified by a designative label or stamp. There are also extensive collections of fruits, seeds, woods, and material illustrating economic botany, placed in cases and drawers.

The direct connection of the department of Botany and the New York Botanical Garden makes access available to the Ellis collection of fungi, the largest accumulation of North American plants of this series in existence, rich in types of American species, as well as extended series of European exsiccatae. The private collection of the Professor of Botany, specially rich in pteridophytes, hepaticæ, and basidiomycetous fungi, is also accessible for study. The entire aggregation of collections thus available for students is exceptionally full in every group of plants from slime moulds to composites, and offers facilities for reference second to none.

The portion of the University Library classified under botany is shelved in a special library room (508), easily accessible from the laboratories. It now contains about 4000 bound volumes, and about 5000 pamphlets and extracts. These numbers do not, however, represent the whole reference strength of the collection, for all general works, scientific journals, and publications of general scientific societies are shelved in the main library. All the regularly published journals devoted to botany are received, and the sets of most of them are complete.

Two series of publications are issued from the department : a quarto series known as the *Memoirs of the Department of Botany*, of which two volumes have been published ; and the *Contributions*, in octavo, which have commenced the seventh volume.

Chemistry

CHARLES F. CHANDLER, M.D., Ph.D., LL.D.....	<i>Professor of Chemistry</i>
PIERRE DE PEYSTER RICKETTS, E.M., Ph.D.....	<i>Professor of Analytical Chemistry and Assaying</i>
CHARLES E. PELLEW, E.M.....	<i>Adjunct Professor of Chemistry</i>
HERMANN T. VULTÉ, Ph.D.....	<i>Instructor in Chemistry (School of Medicine)</i>
JAMES S. C. WELLS, Ph.D.....	<i>Instructor in Analytical Chemistry (Qual.)</i>
EDMUND H. MILLER, Ph.D.....	<i>Instructor in Analytical Chemistry (Quant.) and Assaying</i>
MARSTON T. BOGERT, A.B., Ph.B.....	<i>Instructor in Organic Chemistry</i>
LOUIS H. LAUDY, Ph.D.....	<i>Tutor in Chemistry</i>
JOHN ALEXANDER MATHEWS, M.S., Ph.D.....	<i>Tutor in Chemistry (School of Medicine)</i>
MILTON C. WHITAKER, B.S.....	<i>Tutor in Chemistry</i>
J. LIVINGSTON RUTGERS MORGAN, B.Sc., Ph.D...	<i>Tutor in Chemical Philosophy and Chemical Physics</i>
SAMUEL A. TUCKER, Ph.B.....	<i>Tutor in Industrial Chemistry</i>
LEON LAIZER WATERS, B.S.....	<i>Assistant in Chemistry (School of Medicine)</i>
CHARLES A. HARPER, Ph.D.....	<i>Assistant in Organic Chemistry</i>
VICTOR LENHER, Ph.D.....	<i>Assistant in Analytical Chemistry (Qual.)</i>
CAVALIER HARGRAVE JOUËT, Ph.D.....	<i>Assistant in Analytical Chemistry (Quant.)</i>
FREDERICK SACKETT HYDE, Ph.B.....	<i>Assistant in Analytical Chemistry (Quant.)</i>
EMIL JUSTUS RIEDERER, B.S.....	<i>Assistant in Analytical Chemistry (Assay)</i>

Courses

1—General inorganic chemistry—Introduction. Laws of chemical combination, history, occurrence, preparation, and properties of the elements and their principal compounds. Text-book : Newth's *Inorganic Chemistry*. 3 lectures and 1 recitation, or 1 laboratory exercise Course **6**, or both. Professor CHANDLER, Professor PELLEW, Dr. LAUDY, and Mr. WHITAKER

Required of all first-year students in the Schools of Mines, Chemistry, and Engineering. Open as an elective to sophomores, juniors, and seniors in Columbia College, with three lectures and one afternoon in the laboratory, Course **6**.

Laboratory practice comprises the preparation, physical and chemical properties, and tests of the principal inorganic elements and compounds. Text-book : Pellew's *Laboratory Exercises in General Chemistry*. 1 laboratory exercise a week for the entire year. Professor PELLEW and Mr. WHITAKER

Required of Columbia College students who elect Chemistry **1**.

2—General inorganic chemistry—Introduction. Laws of chemical combination, history, occurrence, preparation, and properties of the elements and their principal compounds. Text-book: Newth's *Inorganic Chemistry*. 2 lectures a week throughout the year. Professor PELLEW and Mr. WHITAKER

Laboratory practice comprises the preparation, physical and chemical properties, and tests of the principal inorganic elements and compounds. Text-book: Pellew's *Laboratory Exercises in General Chemistry*. 2 afternoon exercises in the laboratory and 2 conferences a week for half the year. Half the class during the first half-year; the other half during the second half-year. Dr. VULTÉ, Dr. MATHEWS, and Mr. WATERS

Required of first-year students in the School of Medicine. Open as an elective to seniors in Columbia College.

3—Physical chemistry—Text-books: Morgan's *Theory of Solution and its Results*; Ostwald's *Scientific Aspects of Analytical Chemistry*. 2 lectures a week and 3 hours a week of laboratory work during the second half of the second year. Text-book for the laboratory: Ostwald's *Physico-chemical Methods*. Dr. MORGAN

Required of all second-year students in the School of Chemistry. Open as an elective to seniors in Columbia College. Pre-requisite: Chemistry 1.

4—Physical chemistry—Energy and energy forms. Photo-chemistry, thermo-chemistry, electro-chemistry; chemical statics; chemical dynamics. Text-books: Ostwald's *Allgemeinen Chemie*; Naumann's *Thermo-chemische Rechnungen*; Le Blanc's *Electro-Chemistry*; Ostwald's *Physico-chemical Methods*, and others. 3 lectures a week for the entire fourth year, and 1 afternoon in the laboratory during the first half-year. Dr. MORGAN

Required of all fourth-year students in the School of Chemistry. Open as an elective to seniors in Columbia College, and to candidates for the degrees of A.M. and Ph.D. as a minor or major subject. Pre-requisite: Courses 1 and 3.

5—Physical chemistry, advanced course—Original research; reports by students upon new work, from the *Zeitschrift für Physicalische Chemie*, and other journals. 2 lectures and at least 12 hours laboratory work a week throughout the year. Dr. MORGAN

Open to candidates for the degree of Ph.D. as a major subject. Pre-requisite: Courses 1, 3, and 4.

6—Experimental chemistry—Conferences and laboratory practice. Text-book: Pellew's *Laboratory Exercises in General Chemistry*. 2 conferences and 2 laboratory exercises a week for the first half-year. Professor PELLEW, Dr. WELLS, and Assistants.

Required of first-year students in the Schools of Mines, Chemistry, and Engineering. Open as an elective to sophomores, juniors, and seniors in Columbia College. Pre-requisite or parallel: Course 1.

7—Qualitative analysis—Lectures, conferences, and laboratory practice. Text-book: Wells' *Inorganic Qualitative Chemical Analysis*. 2 lectures or conferences a week, and laboratory practice during the second half-year. Dr. WELLS and Dr. LENHER

The laboratory practice for chemists, metallurgists, and mining engineers consists of 16 hours a week during alternate weeks; for electrical engineers, $13\frac{1}{2}$ hours a week for alternate weeks; for mechanical engineers, $8\frac{1}{2}$ hours a week for every week.

Required of first-year students in the Schools of Mines, Chemistry, and Engineering. Open as an elective to sophomores, juniors, and seniors in Columbia College. Pre-requisite: Courses 1 or 2 and 6.

8—The spectroscope as applied to qualitative and quantitative analysis—Laboratory practice and conferences with the instructors. 8 hours a week for one half-year. Professor RICKETTS and Dr. WELLS

Open to candidates for the degree of A.M. as a minor. Pre-requisite: Courses 1, 6, and 7.

9—Quantitative analysis—Text-books: Cairns' *Quantitative Analysis* and Fresenius' *Quantitative Analysis*. 2 lectures and 2 recitations a week during the second year, and 15 hours laboratory practice. Professor RICKETTS and Dr. MILLER

Required of second-year students in the School of Chemistry and the course in Metallurgy. Open to candidates for the degree of A.M. as a major. Pre-requisite: Courses 1, 6, and 7.

11—Quantitative analysis, inorganic (short course)—Text-book: Miller's *Notes on Quantitative Analysis for Electrical Engineers*. 15 lectures and 60 hours laboratory practice during the first half-year. Dr. MILLER and Mr. HYDE.

The class is divided into two sections. The first section has 2 lectures a week for the first half of the first half-year from October 3d to November 24th, and laboratory work for 4 weeks from October 17th to November 14th. The second section has 2 lectures a week from November 29th to January 28th, and laboratory work from December 5th to January 16th.

Required of second-year students in the course of Electrical Engineering. Pre-requisite: Courses 1, 6, and 7.

12—Quantitative analysis—Text-book: Cairns' *Quantitative Analysis*. 2 lectures or conferences a week during first half of the second year, with laboratory practice 15 hours a week in alternate weeks during the entire year. Professor RICKETTS, Dr. MILLER, and Dr. JOUËT

Required of second-year students in the courses of Mining Engineering. Pre-requisite: Courses 1, 6, and 7.

13—Quantitative analysis—Proximate organic analysis. 2 lectures, 2 recitations a week, and laboratory practice second half of the third year. Chemists, analytical and organic, 16 hours a week; chemists, industrial, 10 hours a week. Professor RICKETTS and Mr. HYDE

Required of third-year students in the School of Chemistry. Open to candidates for the degree of A.M. as a major. Pre-requisite: Course 9.

14—Special methods of commercial analysis—2 lectures a week throughout the year. Laboratory practice during the first half-year for students taking the course in Metallurgy, and the second half-year for students in the course of Analytical Chemistry. Professor RICKETTS, Dr. MILLER, and Dr. JOUËT

Required of fourth-year students in the courses of Analytical Chemistry and Metallurgy. Open to candidates for the degree of Ph.D. as a major, with laboratory work throughout the year. Pre-requisite: Course 9.

15—Special and advanced methods in proximate organic analysis—Research, conferences, and laboratory work at least 20 hours a week, for one year. Professor RICKETTS and Mr. HYDE

Open to candidates for the degree of Ph.D. as a major. Pre-requisite: Courses 9 and 13.

16—Quantitative analysis, special or new methods, gravimetric, volumetric, or electrolytic—Conferences and laboratory work at least 12 hours a week for one or two years. Professor RICKETTS and Dr. MILLER

Open to candidates for the degrees of A.M. and Ph.D. as a major. Pre-requisite: Course 9.

17—Assaying—Ores and metallurgical products. Text-book: Ricketts' and Miller's *Notes on Assaying*. 2 lectures, 1 recitation a week, and laboratory practice. Professor RICKETTS, Dr. MILLER, and Mr. RIEDERER

Required of all third-year students in the courses of Mining Engineering, Metallurgy, and Chemistry. The laboratory work for the mining engineers includes 16 hours a week during alternate weeks throughout the year; for metallurgists and analytical and organic chemists, 16 hours a week during the first half-year; for industrial chemists, 11 hours a week during the first half-year. Open to candidates for the degrees of A.M. and Ph.D. as a minor.

18—Special methods of assaying ores, alloys, and furnace products—Comparison of methods and determination of losses. Conferences and laboratory work at least 8 hours a week for one half-year. Professor RICKETTS and Dr. MILLER

Open to candidates for the degree of A.M. or Ph.D. as a minor. Pre-requisite: Course 17.

20—Organic chemistry, elementary course—Subject treated in a popular manner. Instruction given on such important classes of compounds as the hydrocarbons, alcohols, ethers, organic acids, fats, waxes, soaps, cyanides, carbohydrates, alkaloids, coloring matters, drugs, perfumes, and the like. Text-book: Remsen's *Organic Chemistry*. 2 lectures and 1 recitation a week. Mr. BOGERT and Dr. HARPER

Required of all second-year students in the School of Chemistry. Minor for the degree of A.M. Open to seniors in Columbia College, and to any other students in Columbia University who are properly qualified. Pre-requisite: Course 1 or its equivalent.

30—Organic chemistry, elementary laboratory course—Devoted to the preparation of such simple substances as chloroform, iodoform, ether, urea, nitrobenzole, aniline, acetanilid, sulphanilic acid, carbolic acid, salicylic acid, decomposition and recombination of oil of wintergreen; perfumes, drugs, dye-stuffs, flavoring principles being represented in the series. The student also makes a number of elementary analyses, and vapor-density determinations. Text-book: Noyes' *Organic Chemistry for the Laboratory*. 8 hours a week, both terms, in Organic Laboratory. Mr. BOGERT and Dr. HARPER

Minor for the degree of A.M. Pre-requisite: Courses 1, 3, 7, 9, and 20 (or, it may be taken at the same time with Course 20).

21—General organic chemistry—A more thorough treatment of the subject, including discussion of all the more important classes of organic compounds. The student also prepares in the laboratory a large number of typical organic

compounds, besides making elementary analyses and molecular-weight determinations. Text-books: Bernthsen's *Kurzes Lehrbuch der organischen Chemie* and Noyes' *Organic Chemistry for the Laboratory*. During the first half-year, 3 lectures, 1 recitation, and 20 hours laboratory a week for all fourth-year students in the School of Chemistry; 2 hours conferences additional a week for fourth-year students pursuing the course in Organic Chemistry. During the second half-year, 2 lectures and 1 recitation a week, for fourth-year students pursuing the courses in Industrial or Analytical Chemistry; 2 hours conferences and 16 hours laboratory additional a week for fourth-year students pursuing the course in Organic Chemistry. Mr. BOGERT and Dr. HARPER

Major for the degree of A.M. Pre-requisite: Courses 1, 3, 7, and 9.

22—Advanced organic chemistry, minor courses—Any one of the following subjects: (1) Physical properties of organic compounds as related to their molecular constitution; (2) Dissociation coefficients of organic acids; (3) The terpenes and camphors; (4) Synthetic alkaloids; (5) Synthetic perfumes; (6) Synthetic drugs; and such other subjects as may be selected. Personal instruction and laboratory work not less than 12 hours a week. Mr. BOGERT

Minor for the degree of Ph.D. Pre-requisite: Courses 1, 3, 7, 9, and 21.

23—Advanced organic chemistry, major course—Original investigation and research. Subject to be assigned or approved by the Instructor. Personal instruction, conferences, private study, and laboratory work. Mr. BOGERT

Major for the degree of Ph.D. Pre-requisite: Courses 1, 3, 7, 9, and 21

24—Industrial chemistry, general course—The subjects discussed are:—(1) Air: nature, sources of contamination, sewer gas, plumbing, draining, disinfection, ventilation. (2) Water: composition of natural waters, pollution, disposal of sewage and house refuse. (3) Artificial illumination: candles, oils and lamps, petroleum, gas and its products, electric light. (4) Limes, mortars, and cements. (5) Building-stones: decay and preservation. (6) Timber and its preservation: pigments, paints, essential oils, varnishes, preserving processes. (7) Explosives: gunpowder, gun-cotton, nitro-glycerine. (8) Glass and ceramics. (9) Electro-metallurgy. (10) Photography. Text-books: Park's *Hygiene* and Wagner's *Chemical Technology*. 3 lectures and 1 recitation a week. Professor CHANDLER and Professor PELLEW

Required of all second-year students in the Schools of Mines, Chemistry, and Engineering. Open to juniors and seniors in Columbia College. Pre-requisite: Course 1.

25—Industrial chemistry, special course—The subjects discussed are:—(1) Chemical manufactures: acids, alkalies, and salts. (a) Sulphur, sulphurous acid, hyposulphites, sulphuric acid, bisulphide of carbon. (b) Common salt, soda ash, hydrochloric acid, chlorine, binoxide of manganese, bleaching powder, chlorates, chlorimetry. (c) Carbonate of potash, caustic potash. (d) Nitric acid and nitrates. (e) Iodine, bromine. (f) Sodium, aluminum, magnesium. (g) Phosphorus, matches. (h) Ammonia salts. (i) Cyanides. (j) Alum, copperas, blue vitriol, salts of magnesia, baryta, strontia. (k) Borates, stannates, tungstates, chromates. (l) Salts of mercury and silver. (m) Oils, fats, soaps, and glycerine. (2) Food and drink: milk, cereals, starch, bread, meat,

tea, coffee, sugar, fermentation, wine, beer, spirits, vinegar, preservation of food. (3) Clothing: textile fabrics, bleaching, dyeing, calico printing; paper, tanning, glue, india-rubber, guttapercha. (4) Fertilizers: guano, superphosphates, poudrettes. Text-books: Wagner's *Chemical Technology*; Lunge's *Manufacture of Sulphuric Acid and Soda*; Schultz' and Julius' *Kuenstlichen Organischen Farbstoffe*; Schultz' *Chemie des Steinkohlentheers*. 3 lectures and 1 recitation for two years, one half the subject being discussed each year. Professor CHANDLER and Professor PELLEW

Required of third- and fourth-year students in the School of Chemistry. Pre-requisite: Course 24.

26—Industrial chemistry, laboratory practice—Preparation of chemicals, including solution, filtration, evaporation, crystallization, and distillation, as used in factory practice. 3 afternoons a week during the first half-year. Professor PELLEW and Mr. TUCKER

Required of all third-year students in the School of Chemistry. Open to juniors and seniors in Columbia College. Open as a minor to candidates for A.M. Pre-requisite: Course 1.

27—Industrial chemistry, laboratory practice—Special applications: Textile industry, vegetable and animal fibres, bleaching, dyeing, and calico printing. 3 afternoons a week during the second half-year. Professor PELLEW and Mr. TUCKER

Required of third-year students taking the course in Industrial Chemistry, and of fourth-year students taking the courses in Analytical and in Organic Chemistry. Open to juniors and seniors in Columbia College. Minor for the degrees of A.M. and Ph.D. Pre-requisite: Course 1.

28—Industrial chemistry, laboratory practice—Special applications: Water pollution and purification; photometry; electro-metallurgy; fermentation, yeast, beer, wine, spirits, alcohol. 5 afternoons a week during the second half-year. Professor PELLEW and Mr. TUCKER

Required of fourth-year students taking the course in Industrial Chemistry. Open to seniors in Columbia College. Minor for the degree of A.M. or Ph.D. Pre-requisite: Course 1.

29—Industrial chemistry, advanced course—Original research; the study and investigation of methods and processes in sanitary and industrial chemistry. Personal instruction and laboratory work for one year. Professor PELLEW and Mr. TUCKER

Major for the degree of Ph.D. Pre-requisite: A knowledge of General, Analytical, and Industrial Chemistry.

Equipment

In Havemeyer the Chemical Department is provided with ample space for its museum, lecture-rooms, and laboratories, and every convenience has been provided for both the instructors and students working in the general or special courses.

There are five chemical lecture-rooms, all fully supplied with apparatus and instruments, and equipped with pneumatic troughs, gas, pressure, exhaust, and electricity. The large chemical lecture-room on the ground floor contains 316

seats. Underneath the rear of this room is situated a large storeroom for lecture apparatus, and connected with it are convenient rooms for preparing the lecture experiments.

The museum of General Inorganic and Organic Chemistry and of the Chemical Arts, a large and lofty room occupying the whole left wing of the ground floor, contains the elements and all their more important compounds; representative sets of specimens of all classes of organic compounds; materials and products illustrating the chemical arts, and numerous models, pictures, and diagrams illustrating the various branches of the science of chemistry.

The Qualitative and General Chemistry Laboratory is equipped with ninety-six desks, each divided into two sections, for use by different students, and each equipped with sink and water faucet, gas, exhaust, and electric light. The laboratory has been entirely refurnished with new and handsome sets of imported reagent bottles. In the General Chemistry Laboratory, the students of Columbia College and the other schools who select this course as an option, are taught, in a thorough manner, to prepare the more important elements and their inorganic compounds, and to study the principal physical and chemical properties of the same.

In the Qualitative Laboratory, principally used by the students in the Schools of Pure and Applied Science, the reactions of the various metals and salts are taught largely with a view to their separation and identification. The students first learn the properties of the individual members of a single group of acids or bases. Then single members or mixtures of members of this group are submitted to them for identification; and finally, proceeding from simple to complex substances, they become able to determine the composition of the most difficult mixtures.

The Quantitative Laboratory is equipped with seventy-two desks, each one provided with gas, water, pressure, exhaust, and electricity, besides electric lights. The students first analyze substances of known composition, such as crystallized salts, so that they may constantly check the accuracy of their work by reference to the true percentage composition. Then they proceed to more complex analyses of materials that they would be apt to meet with in their actual practice, such as ores, metals, and minerals, and a great range of commercial articles, both organic and inorganic, such as gas, water, food products, and the like. Attached to the main laboratory is a large and well-equipped balance room, containing accurate balances, and special rooms, which are now being equipped with the latest and most improved apparatus for gas, water, and electrolytic analysis.

The Organic Laboratory contains forty large and commodious desks, each one provided with water, gas, pressure, exhaust, and electricity. The laboratory is also provided with high- and low-pressure steam, and with special rooms for balances, pressure ovens, glass-blowing, combustions, and for advanced work in various directions. It is thoroughly equipped with all necessary apparatus and instruments for the determination of boiling-points, melting-points, specific gravities, vapor densities, for proximate and elementary analyses, and for the synthetic preparation of organic compounds.

The Laboratory of Industrial Chemistry is planned for the instruction of

students in the practical operations of chemical manufactures and chemical industries, and in the solution of various important problems in sanitary chemistry and hygiene. It is equipped for the manufacture of pure chemicals from their raw materials on an industrial scale, with fine batteries of steam evaporators, and with steam stills, centrifugals, filter presses, crushers, and the like. It includes a dyeing laboratory supplied with a large stock of the most important natural and artificial dye-stuffs, and with all the regular equipment used in the practical testing of dyes, including a calico-printing machine. Connected with it is a photometer room, containing a new and complete outfit for the practical testing of illuminants. Among the other subjects in which practical instruction is to be given in this laboratory may be mentioned the filtration and purification of water and sewage, fermentation and distillation, the use of the electric furnace, and the manufacture of sugar, petroleum products, and leather.

The Laboratory of Physical Chemistry is well equipped with the most recent apparatus adapted to a wide range of experimental work in the branches of heat, light, and electricity as applied to chemical problems. The students take up the subject in the second year with special reference to the behavior of substances in solution. In their fourth year they resume the subject from a more advanced standpoint, and, with the aid of the higher mathematics, attack problems of broader range and greater difficulty. Towards the end of their course a simple original investigation is undertaken, which, if successful, is published by the student.

The Assay Laboratory is provided with crucible and muffle furnaces, both gas and coal, for the fire assay of ores; also with crushing, pulverizing, and sampling machinery, balance-room, storeroom, and thirty-six well-equipped working desks. It also contains all the apparatus necessary for the wet assay of silver bullion and for laboratory tests of ores.

Dermatology

GEORGE HENRY FOX, A.M., M.D.....	<i>Clinical Professor</i>
GEORGE THOMAS JACKSON, M.D.....	<i>Chief of Clinic</i>
CHARLES C. RANSOM, M.D.....	<i>Clinical Assistant</i>
JOHN CABOT, M.D.....	<i>Clinical Assistant</i>
JOHN H. P. HODGSON, M.D.....	<i>Clinical Assistant</i>
JOHN ALDRICH, M.D.....	<i>Clinical Assistant</i>
CHARLES T. DADE, M.D.....	<i>Clinical Assistant</i>

Courses

1—Clinical lectures at the Vanderbilt Clinic upon the diseases of the skin—1 hour. Professor FOX

Required, in the fourth year, of candidates for the degree of M.D.

2—Practical instruction at the Vanderbilt Clinic in the diagnosis and treatment of the diseases of the skin—12 lessons for each student. Dr. JACKSON.

Required, in the fourth year, of candidates for the degree of M.D.

Diseases of Children

ABRAHAM JACOBI, M.D., LL.D.....	<i>Clinical Professor</i>
FRANCIS HUBER, M.D.....	<i>Chief of Clinic</i>
JOSEPH HUBER, M.D.....	<i>Clinical Assistant</i>
FRED. S. McHALE, M.D.....	<i>Clinical Assistant</i>
LOUIS M. SILVER, M.D.....	<i>Clinical Assistant</i>
FRED. E. SONDERN, M.D.....	<i>Clinical Assistant</i>

Courses

1—Clinical lectures at the Vanderbilt Clinic upon the diseases of children—1 hour. Professor JACOBI

Required, in the fourth year, of candidates for the degree of M.D.

2—Practical instruction at the Vanderbilt Clinic in the diagnosis and treatment of the diseases of children—10 lessons for each student. Dr. FRANCIS HUBER

Required, in the fourth year, of candidates for the degree of M.D.

3—Hospital Clinic—Bellevue Hospital, Mondays, 2.30 P.M., from April to June. Professor JACOBI

Optional.

Economics and Social Science

RICHMOND MAYO-SMITH, Ph.D.....	<i>Professor</i>
EDWIN R. A. SELIGMAN, LL.B., Ph.D.....	<i>Professor</i>
FRANKLIN HENRY GIDDINGS, Ph.D.....	<i>Professor</i>
JOHN BATES CLARK, Ph.D., LL.D.....	<i>Professor</i>
WILLIAM ZEBINA RIPLEY, Ph.D....	<i>Prize Lecturer</i>
ARTHUR M. DAY, A.M.....	<i>Assistant</i>
GEORGE J. BAYLES, Ph.D.....	<i>Prize Lecturer</i>

The courses offered fall into two divisions: Political Economy and Finance, and Sociology and Statistics. Economics **A** and **1** are the general introductory courses primarily intended for juniors in the College. Economics **3** and **4** are intended to give a general survey, respectively, of political economy and finance, from the historical and comparative point of view. While serving as useful courses for those intending to specialize still further in economics or sociology, they are especially recommended to those who desire to secure some knowledge of political economy as a part of a liberal education. Economics **1** to **8** will be found of especial value to law students seeking to supplement their purely legal studies. Sociology **15** and **16** are introductory courses leading up to Course **20**. Sociology **20** and **21** are the general systematic courses laying the basis for the other courses in applied sociology. Sociology **15** to **24**, together with Economics **3**, **8**, **11**, and **12**, will be of value to students of theology who wish to extend their knowledge of the social problems of the day.

In addition to the regular courses, there are two seminars, organized to furnish students opportunity for special investigation and original research. Every

candidate for the degree of Master of Arts or Doctor of Philosophy, taking his major subject in this department, must work in at least one of the seminars.

The allied courses in history and public law will be found extremely useful for the students of social science, because of the close inter-relations of history, law, and economics. Taken together, these courses constitute a complete scheme of political science.

Economics A is required of juniors in the College, and open to sophomores who have taken Economics 1. Economics 1 is open to juniors and qualified sophomores in the College. Economics 3, 4, 11, and 12, and Sociology 15 and 16, are open to seniors in the College and other candidates for the degree of Bachelor of Arts. The remaining courses are intended for university students.

Courses in Political Economy and Finance

Economics A—Outlines of Economics—Recitations, lectures, and essays. 3 hours, second half-year. Professor MAYO-SMITH and Mr. DAY

Economics 1—Economic history of England and America—Selected textbooks, recitations, essays, and lectures. 3 hours, first half-year. Professor SELIGMAN and Mr. DAY

Economics 3—Practical political economy—Lectures, discussions, and reading. 3 hours. Professor MAYO-SMITH

Economics 4—Science of finance—Lectures and private reading. 2 hours. Professor SELIGMAN

Economics 5—Fiscal and industrial history of the United States—Lectures and private reading. 2 hours, first half-year. Professor SELIGMAN
Omitted in 1898-99.

Economics 7—Railroad problems, economic, social, and legal—Lectures and private reading. 2 hours, second half-year. Professor SELIGMAN
Omitted in 1898-99.

Economics 8—History of political economy—Lectures, discussions, and readings. 2 hours. Professor SELIGMAN

Economics 9—Economic theory I—The static laws of distribution—Lectures and private reading. 2 hours, first half-year. Professor CLARK

Economics 10—Economic theory II—The dynamic laws of distribution—Lectures and private reading. 2 hours, second half-year. Professor CLARK

Economics 11—Communitistic and socialistic theories—Lectures and private reading. 2 hours, first half-year. Professor CLARK

Economics 12—Theories of social reform—Lectures and private reading. 2 hours, second half-year. Professor CLARK

Economics 14—Seminar in political economy and finance—For advanced students. 2 hours. Professors SELIGMAN and CLARK

Courses in Sociology and Statistics

Sociology 15—Principles of sociology—Recitations, lectures, and collateral reading. 2 hours. Professor GIDDINGS

Sociology 16—Applied anthropology—Lectures and private reading. 2 hours, second half-year. Dr. RIPLEY

Sociology 17—Statistics and sociology—Lectures, illustrations, and private reading. 2 hours, first half-year. Professor MAYO-SMITH

Sociology 18—Statistics and economics—Lectures and private reading. 2 hours, second half-year. Professor MAYO-SMITH

Sociology 19—Theory of statistics—Lectures and private reading. 2 hours, second half-year. Professor MAYO-SMITH

Omitted in 1898-99.

Sociology 20—General sociology—Lectures and private reading. 2 hours, first half-year. Professor GIDDINGS

Sociology 21—Progress and democracy—Lectures and private reading. 2 hours, second half-year. Professor GIDDINGS

Sociology 22—Pauperism, poor laws, and charities—Lectures and private reading. 2 hours, first half-year. Professor GIDDINGS

Sociology 23—Crime and penology—Lectures and private reading. 2 hours, second half-year. Professor GIDDINGS

Sociology 24—Civil aspects of ecclesiastical organization—Lectures and private reading. 1 hour, first half-year. Dr. BAYLES

Sociology 29—Laboratory work in statistics—Exercises in analyzing, criticising, and tabulating statistics ; in connection with Courses 17, 18, and 19. 2 hours, bi-weekly. Professor MAYO-SMITH

Sociology 30—Seminar in sociology. 2 hours, bi-weekly. Professor GIDDINGS

Equipment

The library facilities are unexcelled. Every journal of importance, American or foreign, dealing with economics or social science, is taken regularly by the Library. Any book needed by advanced students can usually be bought at once. The special library of history and political science comprises about sixty-five thousand volumes.

Students of economics and social science will find New York to be a centre of library facilities unrivalled elsewhere in this country. In addition to the University Library, there are rich treasures at the New York Public Library on the Astor, Lenox, and Tilden foundation, New York Historical Library, Long Island Historical Library, Library of the Charity Organization Society, the Bar Association Library, and the Law Institute Library, to each of which students have access under favorable conditions. Advanced students also have at their disposal the library of the Professor of Political Economy and Finance, which contains the most complete collection of works on political economy to be found in the United States.

The facilities offered to students of sociology include a large library of general and special works, and unusual opportunities for field-work. A generous gift for works on sociology has provided a very complete equipment of publications on sociological theory, the history of the family, pauperism, crime,

and penology. Arrangements have been made with the Charity Organization Society, the State Charities Aid Association, the University Settlement, the East-Side House, and the Brooklyn Bureau of Charities by which students can become fully acquainted with actual work among the people and with the most perfect methods.

Education

(See page 2)

Electrical Engineering

(See page 82)

ENGINEERING

Civil Engineering

WILLIAM HUBERT BURR, C.E.....	<i>Professor</i>
EARL B. LOVELL, C.E.....	<i>Adjunct Professor</i>
ADOLPH BLACK, C.E.....	<i>Tutor</i>
CHARLES DERLETH, JR., C.E.....	<i>Assistant</i>

The four-years' course leading to the degree of Civil Engineer is designed to afford a thorough analytical training, as well as numerous and extended practical exercises in those matters which pertain to the profession of the civil engineer, both in regard to all classes of structures and public works and in connection with the various developments and applications of power by the use of steam, electric, water, and air motors. This course is also designed to be an educational preparation for those duties or functions of an executive character, whose discharge in connection with the management of public or other works requires, or is rendered more efficient through a thorough knowledge of civil engineering. The breadth and nature of this educational training adapts it no less efficiently to the purposes of those who intend to follow callings not of an engineering character, but which may be related more or less to manufacturing, to structural matters, or to the development and application of power. The theoretical portion of the instruction is based largely upon the courses given in the departments of Mathematics, Mechanics, and Physics, and the results obtained are applied to practical engineering work. Special stress is laid upon the design by the student of the various structures and machines which the civil engineer is called upon to construct in the practice of his profession. The instruction is given by lectures, demonstrations by the student, and frequent conferences, co-ordinate with which the work of design is continuously carried on. It covers comprehensively the subjects of surveying, road and railroad engineering, water supply of cities and towns, irrigation, sanitary engineering, including sewage disposal, both graphic and analytic treatment of all metallic structures, foundations, retaining and reservoir walls, high masonry dams, sewer systems, hydraulic engineering, rivers and harbors, pumping engines, hydraulic, steam, and electric motors.

Ample facilities are afforded for post-graduate students in civil engineering,

and special students are admitted to the various engineering courses of the department upon evidence of proper qualifications.

Courses 1 to 17, inclusive, are required of all students in civil engineering. Courses 1, 5, 6, 15, 16, 17, are required of all students in mining engineering and metallurgy. Course 5 is required of all students in electrical engineering. All courses are open as electives to students who have had the requisite preparation to take them.

Courses

1—Theory of surveying—Pacing survey, contouring, and levelling by hand-level—Construction, use, and adjustment of instruments—Farm survey—Theory of stadia measurement—Azimuth traverse—Repetition traverse—Polaris observations—Balancing survey. Reference book: Johnson's *Theory of Surveying*. 2 hours, second half of first year. Mr. BLACK

2—Road engineering—Surveys and location of roads—Drainage and grades—Foundations—Selection and treatment of materials—Telford and McAdam pavements—City pavements of brick, Belgian and granite blocks, asphalt, cement and concrete—Machinery and tools required in the construction of roads and pavements—Maintenance of roads and pavements—Elements of expense and total cost of construction and maintenance. Reference book: Byrne's *Highway Construction*. 2 hours, first half of the second year. Mr. BLACK

3—Water-supply engineering and irrigation—Rainfall and storage—Flow of streams—Influence of soils, elevation, and geological character of water-shed—Methods of supply, gravitation, pumping from rivers or natural underground storage, flow from the latter—Reservoir construction—Sedimentation and filtration—Distributing system—House supply and wastage—Irrigation of land—Amounts and periods of application—Construction of and flow through division and distributing canals. Reference books: Fanning's *Water Supply* and Wilson's *Irrigation Engineering*. Lectures and recitations. 2 hours, second half of the second year. Professor LOVELL

4—Masonry structures—Pressure and abutting power of earth—Design and construction of retaining walls—Stability of masonry structures in general—Stability of towers and chimneys under wind pressure—Theory and design of arches with vertical and inclined loads—Theory and design of reservoir walls, earth and high masonry dams—Cement, concrete, and masonry. Reference books: Cain's *Retaining Walls* and Baker's *Masonry and Foundations*. 1 hour lectures during third year, with frequent conferences and continuous work in design. 2½ hours of problem and design work are required in the drawing academy. Professor LOVELL and Mr. BLACK

5—Elasticity and resistance of the materials of engineering—Laws of elasticity in homogeneous materials—Coefficients of elasticity—Relations between stresses and strains—Common and exact theories of torsion and flexure—Elastic limits, working stresses, and ultimate resistances of wrought-iron, cast-iron, steel, alloys, timbers, building-stones, cement, concrete, and masonry—Complete treatment of simple and continuous beams—The design and construction of iron, steel, and timber columns and beams, including the design and construc-

tion of plate girders—Shafts—Cables—Fatigue of materials—Specifications. 3 hours lectures and recitations during the first half and 2 hours during the second half of the third year. 7½ hours first half-year and 5 hours second half-year of problem and design work, are required in the testing laboratory and drawing academy. Reference and text-book: Burr's *Elasticity and Resistance of Materials*. Professor BURR, Professor LOVELL, and Mr. BLACK

6—Graphic statics—Equilibrium polygon, and polygonal frames for all systems of loads—Graphical representations of shears and moments for both non-continuous and continuous beams—Fixed and moving loads—Lines of influence—Applications to bridge and roof trusses. 2 hours lectures during the second half of the third year. 5 hours of problem and design work are required in the drawing academy. Mr. BLACK

7—Analytical theory of trusses—The truss element—Simple cantilever and non-continuous trusses with parallel chords—Fixed and moving loads—Through and deck spans—Positions of any system of concentrated moving loads for greatest chord and web stresses when chords are both parallel and not parallel—Combination of moment and graphic methods—Skew and irregular trusses—Applications to bridge and roof trusses—Braced arches and arched ribs. 2 hours lectures during the second half of the third year, with frequent conferences and problems in computations of stresses and preparation of stress sheets. 5 hours of problem and design work are required in the drawing academy. Reference and text-book: Burr's *Stresses in Bridge and Railway Trusses*. Mr. BLACK

8—Sewage disposal—Treatment and disposal of sewage and refuse of manufacturing—Sedimentation by gravity and by chemical precipitation—Treatment of effluent by continuous and intermittent sand filtration—Fertilization—Intermittent application to soil with under-drainage—Disposal of sludge—Theory and construction of sand filters—Plants for sewage treatment—Pollution of potable water and its purification by continuous and intermittent sand filtration—Design of sand filter for water purification. 2 hours lectures, first half of the third year. Professor BURR and Mr. BLACK

9—Railroad engineering—Economics of location, operation, and maintenance—Equating grades and curves—Estimating quantities and writing specifications—Contracts—Track and switch work—Block and other systems of signalling—Buildings and structures—Organization. 3 hours lectures, half of first half and all of the second half of the fourth year. Reference books: Wellington's *Railway Location* and Tratman's *Railway Track and Track Work*. Professor LOVELL

10—The design and construction of bridges, roofs, and buildings—Railway and highway bridges—Pin and riveted connections—Single and multiple systems of bracing—The design of details for bridges, roofs, and buildings—Floors for railway and highway bridges—The design and operation of draw-bridges, including engines, locking, lifting, and turning machinery—Cantilever structures—Wind loads and stresses—Single- and double-track viaducts or trestles in iron, steel, and timber—Lateral and transverse systems of bracing—The design and construction of elevated railroads—The complete designs of

railway structures, with estimates of cost—The erection of iron, steel, and timber structures, including the cost of erection. 2 hours lectures and recitations, fourth year, with frequent conferences and continuous work in design. 5 hours of problem and design work are required in the drawing academy. First half-year only for sanitary engineers. Reference and text-book: Burr's *Stresses in Bridge and Railway Trusses*. Professor BURR and Mr. DERLETH

11—Foundations—Earth foundations—Foundations for buildings—Safe loads on masonry and foundation beds—Pile driving and pile foundations—Safe loads for piles—Protection and preservation of piles and timber—Sheet piling and coffer-dam methods—Pneumatic foundations and caisson work—Open dredging—Bridge piers of masonry and cylinders—Piers for deep foundations—Methods of working in quicksands—Tunnelling. Reference books: Patton's *Foundations* and Baker's *Masonry and Foundations*. 2 hours lectures, first half of fourth year, with frequent conferences and continuous work in design. 5 hours of problem and design work are required in the drawing academy. Professor BURR

12—Hydraulics—Flow of water through orifices—Time required for discharge of canal locks and similar volumes—Weir discharge and gauging by weirs—Gauging of water for systems of irrigation—Flow through and discharge of pipes—Design of pipe systems for city water-works—The Venturi meter—Flow in and discharge of open canals and rivers—Gauging of streams by current meters, floats, and other means—Backwater—Impulse of streams—The motion and flow of air and other gases in and through pipes and orifices. Reference book: Merriman's *Hydraulics*. 2 hours lectures during first half of fourth year, with laboratory work, frequent conferences, and problems. Professor BURR and Mr. DERLETH

13—The design and construction of sewers and river and harbor improvements—Sewage and surface drainage of cities and towns—Separate and combined systems of sewers—Capacities of mains and branches—Catch basins—Manholes—Chimneys or ventilators—Flush tanks—Outfalls—Grades—Flow or discharge of sewers—Construction—Jetty system of river improvements—Scouring action of currents—Erosion of river banks—Dams for improvement of river navigation—Breakwaters—Dykes—Groins—Mattress work—Docks—Harbor works—Iron piers—Estimates of cost. 2 hours lectures, second half of fourth year, with frequent conferences. Professor BURR

14—Theory of railroad surveying—Simple, compound, and reversed curves—Transition curves—Cross-section work—Earthwork computations—Office work. Lectures and practical problems. 1 hour, third year. Reference books: Searle's *Field Engineering* and Crandall's *Transition Curve and Earthwork*. Professor LOVELL

The Summer School of Surveying

This school is conducted during ten to twelve weeks of each summer vacation at a point in the country near Litchfield, Conn., where ample facilities are provided for all requisite operations, and where the topography is admirably adapted to the practical work of surveying. The operations at the summer

school include the entire actual surveying of the department of Civil Engineering, together with such lectures, computations, and mapping as pertain to it. About six weeks' continuous attendance is required of each class between the first and second, and the second and third years, and four weeks between the third and fourth years. The school possesses an unusually full equipment of engineers' and solar transits, levels, plane tables, compasses, and all accessories and smaller instruments. A corps of special assistants for each session aid the regular officers of the school. At each session the following courses are given :

15—Surveying between the first and second years—Pacing, chaining, and ranging—Farm survey—Adjustment of instruments—Angle reading by repetition—Repetition traverse—Azimuth traverse. Daily lectures, field and office work. Mr. BLACK

16—Surveying between the second and third years—Levelling—Topographical survey with plane table—City surveys—Contour sketching. Daily lectures, field and office work. Professor LOVELL

17—Surveying between the third and fourth years—Railroad surveying—Reconnaissance—Preliminary survey—Location—Cross-sectioning—Computations—A complete survey and location of a line two to five miles long are made with all the attendant computations requisite for placing the work under contract. Daily lectures, field and office work. Professor LOVELL

Graduation Thesis

A satisfactory project or thesis is required of every candidate for the degree of Civil Engineer at graduation.

18—Sanitary engineering of buildings—Water-pipe systems—Treatment and disposition of all refuse and waste products—Trapping and ventilation of basins, closets, and sewer pipes—Drainage of buildings and building sites—Plumbing of buildings. 2 hours, first half second year.

19—General principles of hygiene and sanitary science—Effects of water supply on public health—Metallic pipes for water—Effects of impure air on health—Influence of conditions of soils on health—Remedial measures applicable to unsanitary conditions—Sewage air—Disposition of Sewage—Sanitary treatment of buildings—Contagious and other diseases. 2 hours, second half second year.

20—Heating and ventilation—General features of systems of heating and of ventilation—Steam heating—Hot-water heating—Heating with hot air—Hot-water circulation—Plant required in different systems of heating—Amounts of fresh air required in buildings devoted to various purposes—Modes of introducing fresh air and withdrawing foul air—Power for and capacities of systems of artificial ventilation—Complete designs for heating and ventilating plants. 2 hours, fourth year.

21—Drainage of country districts and towns—Requisite surveys—Effects of topography and character of materials—Surface and sub-surface waters—Disposal of drainage waters—Designs for drainage systems. 2 hours, second half fourth year.

University Courses

The minor subjects in the department of Civil Engineering for the university degrees of Master of Arts and Doctor of Philosophy are the following :

5—Elasticity and resistance of materials.

22—Foundations, including theory of earth pressure (Civil Engineering 11 with additional reading).

23—Hydraulics (Civil Engineering 12 with additional reading).

24—Long-span bridges. Conferences, with reading and design work, as required.

Open to those who have taken Civil Engineering 10.

25—Elastic and masonry arches. Conferences, with reading and design work, as required.

Open to those who have taken Civil Engineering 4.

The major subjects for the same university degrees are the following :

26—Sanitary engineering.

27—Hydraulic engineering, including the hydraulics of rivers and power plants and municipal water-works.

28—Municipal engineering, including water-works, sewers and sewage works, streets and other public works and their administration.

29—The engineering of structures, including long-span bridges and deep foundations, with methods of building them, and advanced work in elasticity and resistance of materials.

Equipment

The school possesses an unusually full equipment of engineers' and solar transits, levels, plane tables, compasses, and all accessories, as well as smaller instruments. Current meters, hook gauges, and floats of various types are also used in making observations on the flow in and discharge of rivers and canals. A complete set of sections of iron and steel shapes, models and photographs of engineering works, together with working plans of the latter, are in the department for the use of students. The hydraulic laboratory affords opportunity for the practical operations of measuring the discharge through weirs and other orifices, the flow through open channels and closed pipes, frictional and other resistances in pipes and open channels, as well as for meter gaugings, and for general hydraulic investigations. The testing work in the mechanical laboratory includes the complete tests of various structural materials in tension, compression, bending, and torsion, including the observation and digesting of all corresponding data.

A cement-testing laboratory is fully equipped with testing machines, briquette moulds, tanks, and other apparatus requisite for all classes of investigations in the nature and physical properties of cements and cement mortars. All students are required to make and test briquettes of cement and cement mortar as well as to ascertain the weight, fineness, and other physical properties of such cement, sand, and mortar, as may be assigned to them for examination.

In addition to the actual equipment of the school, a great variety of large engineering works is continually in process of construction in New York City and vicinity, and the requisite steps are always taken to render them accessible to the students of the department for examination and study.

The library facilities consist of an extensive collection of foreign and domestic engineering books and periodicals, to which additions are being constantly made. This collection of engineering literature forms a part of the general Library of the University, and is constantly available for both undergraduate and post-graduate study.

Electrical Engineering

* FRANCIS B. CROCKER, E.M., Ph.D	<i>Professor</i>
GEORGE FRANCIS SEVER	<i>Instructor</i>
WILLIAM H. FREEDMAN, C.E., E.E.....	<i>Tutor</i>
FITZHUGH TOWNSEND, A. B., E.E.....	<i>Assistant</i>
WILLIAM A. ANTHONY, Ph.B.....	<i>Lecturer</i>

The theoretical side of electrical engineering is treated by lectures delivered by Professor PUPIN of the department of Mechanics, under which head the various courses will be found. Mr. FREEDMAN assists the department of Mechanics by teaching Course 6 and part of Course 7 of that department.

See Mechanics 6, 7, 8, 9, 14, 14a, 15, and 18.

Courses

1—Dynamo and motor practice—Principles, construction, operation, and design of dynamos and electric motors. Text-book: Crocker's *Electric Lighting*, vol. i. 3 hours, first half-year. Mr. SEVER

Required of all third-year students in Electrical and Mechanical Engineering. Pre-requisite: Course 7.

Course 1 with Courses 4 and 10 count together as a minor for the degree of A.M.

2—Electric power—Transmission and distribution of electric power, including the principles and applications of the direct-current, single-phase, and polyphase systems. 3 hours, first half-year. Professor CROCKER *

Required of all fourth-year students in Electrical and Mechanical Engineering. Pre-requisite: Course 1.

Course 2 with Courses 11, 21, 22, and 23 count together as a minor for the degree of A.M. Pre-requisite: Physics 3 and Electrical Engineering 1, 4, and 10.

3—Electrical engineering—Electrochemistry and electrometallurgy; including theory and applications of electrolysis and electrical heating; theory and practice of primary and secondary batteries; production, separation, and purification of metals and chemicals. 1 hour. Professor CROCKER *

Required of all fourth-year students in Electrical and Mechanical (Course B) Engineering, Chemistry (Courses A, B, and C), and Metallurgy. Pre-requisite for electrical engineers: Course 4, Chemistry 11, and Mathematics 12; for mechanical engineers, Course 4, Chemistry 7, and Mathematics 12; for students in Chemistry (Course B), Course 5; for students in Chemistry, (Courses A and C), Chemistry 13; for students in Metallurgy, Course 5.

* Absent on leave for the academic year 1898-1899, during which time his lectures will be given by Prof. William A. Anthony.

4—Electric lighting—The design, installation, and operation of electric-lighting systems and plants, including a discussion of each of the various elements and methods employed. Text-book: Crocker's *Electric Lighting*. 3 hours, second half-year. Mr. FREEDMAN

Required of all third-year students in Electrical and Mechanical Engineering. Pre-requisite: Course 1.

Course 4 with Courses 1 and 10 count together as a minor for the degree of A.M.

5—Electrical engineering—The principles of electrical engineering and their application to general engineering. 1 hour lecture and 1 afternoon laboratory work, second half-year. Professor CROCKER*

Required of all third-year students in Civil, Sanitary, and Mining Engineering, Chemistry (Course B), and Metallurgy. Pre-requisite: Mathematics 11 and Physics 1.

6—Electrical engineering—Telegraphy and telephony. Text-books: Pope's *Modern Practice of the Electric Telegraph*; *Practical Telephone Hand-book*, Webb. 1 hour. Mr. FREEDMAN

Required of all third-year students in Electrical and Mechanical (Course B) Engineering. Pre-requisite: Course 7.

7—Elements of electrical engineering—General electrical principles, laws, measurements, and the introduction to their applications, including the elements of the dynamo. Text-book: *Elementary Lessons in Electricity and Magnetism*, Thompson. 1 hour, first half-year; 2 hours, second half year. Mr. SEVER and Mr. FREEDMAN

Required of all second-year students in Electrical, Mechanical, and Civil Engineering. Pre-requisite: Mathematics 11 and Physics 1.

8—Electric railway—Special instruction in design, installation, and operation of the various systems of electric railways. 2 hours, second half-year. Mr. SEVER

Required of all fourth-year students in Electrical and Mechanical Engineering. Pre-requisite: Course 2.

10—Electrical engineering laboratory.

1. Practice in the accurate use of volt meters and ammeters for the measurements of E. M. F.'s, currents, and resistances.

2. Examination of, and report on, a dynamo and motor.

3. Direct current dynamos and motors.

(a) Measurement of the resistances of the various electrical circuits in a dynamo. Comparison of methods. Insulation tests. Determination of the heating limit under full-load conditions. Operation of various kinds of dynamos and motors. Investigation and measurement of counter E. M. F. in a motor.

(b) Determination of the efficiency of dynamos and motors by the use of transmission dynamometers and friction brakes. Use of electrical methods for the determination of the efficiencies of motors, dynamos, and motor-dynamos. Comparison of methods.

(c) Determination and plotting of the various characteristic curves of dynamos and motors, shunt, series, compound, and differential.

* Absent on leave for the academic year 1898-1899, during which time his lectures will be given by Prof. William A. Anthony.

(*d*) Operation of the steam-engine, and use of the steam-engine indicator, in determining power of dynamos. 1 afternoon. Mr. SEVER

Required of all third-year students in Electrical and Mechanical Engineering. Pre-requisite: Course 7.

Course 10 with Courses 1 and 4 count together as a minor for the degree of A.M.

11—Alternating current laboratory.

1. Practice in alternating current measurements with commercial instruments.

2. Introductory experiments on the general properties of alternating current circuits.

3. Determination, by various methods, of the efficiency of transformers. Determination of the values of the different losses.

4. Determination and plotting of curves of potential current and power, etc., under different conditions.

5. Operation of alternating current dynamos and motors. Determination of their characteristic curves. Brake and efficiency tests.

6. Experiments with polyphase currents. Construction of vector diagrams from actual determinations. Determination and plotting of the several potential, current, and power curves.

7. Transformation from one polyphase system into another by means of static transformers. 3 afternoons, part of first and second half-years. Mr. SEVER, Mr. FREEDMAN, and Mr. TOWNSEND

Required of all fourth-year students in Electrical and Mechanical (Course B) Engineering. Pre-requisite: Course 10.

Course 11 with Courses 2, 21, 22, and 23 count together as a minor for the degree of A.M. Pre-requisite: Physics 3 and Electrical Engineering 1, 4, and 10.

12—Electrical instrument laboratory.

Calibration of commercial measuring instruments and advanced electrical measurements, including self-induction, capacity, and magnetic measurements, as follows:

1. By comparison with a Kelvin balance, the calibration of (*a*) an ammeter, (*b*) a Siemens dynamometer.

2. Calibration of a volt meter.

3. Determination of the constant of a watt-hour meter.

4. Measurements of inductance and capacity. (*a*) Comparison of inductances. (*b*) Determination of a co-efficient of self-induction. (*c*) Comparison of capacities. (*d*) Absolute determinations of a capacity and a self-induction.

5. Magnetic measurements. (*a*) Measurements relating to the magnetic leakage of a dynamo or motor. (*b*) Determination of the permeability of samples of iron and steel. (*c*) Measurement of hysteresis of samples of iron or steel by several methods. 3 afternoons, part of first half-year. Mr. FREEDMAN and Mr. TOWNSEND

Required of all fourth-year students in Electrical and Mechanical (Course B) Engineering. Pre-requisite: Course 10.

13 to 20—Conference, problem, and design work in connection with advanced electrical engineering, including long-distance transmission of power, special forms of dynamos, motors, and the like.

21—Electrical engineering laboratory—Special investigations. Mr. FREEDMAN and Mr. TOWNSEND

Course 21 with Courses 2, 11, 22, and 23 count together as a minor for the degree of A.M. Pre-requisite: Physics 3 and Electrical Engineering 1, 4, and 10.

22—Management of electrical plants—Economy in the design, construction, and operation of electrical stations, plants, and factories. Organization, administration, accounts, specifications, contracts, laws and insurance rules, accidents, patents, and statistics in relation to electrical work. 3 hours, second half-year. Professor CROCKER *

Required of all fourth-year students in Electrical Engineering. Pre-requisite: Courses 2 and 23. Course 22 with Courses 2, 11, 21, and 23 count together as a minor for the degree of A.M. Pre-requisite: Physics 3 and Electrical Engineering 1, 4, and 10.

23—Electrical distribution—Principles and methods of transmitting and distributing direct as well as alternating currents; series, parallel and multiple wire systems; regulation of voltage and current; transformers; meters; arc and incandescent lamps. 2 hours, first half-year. Professor CROCKER *

Required of all fourth-year students in Electrical Engineering. Pre-requisite: Course 4. Course 23 with Courses 2, 11, 21, and 22 count together as a minor for the degree of A.M. Pre-requisite: Physics 3 and Electrical Engineering 1, 4, and 10.

Graduates of colleges or technical schools are admitted without examination as candidates for the degree of Electrical Engineer, provided their preparatory course of study has been sufficient.

It is possible for a graduate of a high-grade mechanical or other engineering course to obtain the degree of Electrical Engineer in one year. In such a case the student must have already passed the general and mechanical subjects of the entire course. These cover practically all the work of the first and second years of the Electrical Engineering course and nearly half of the third- and fourth-year subjects. The student may, therefore, be excused from these studies and can devote himself to the electrical subjects of the third and fourth years, which are specially arranged to avoid conflicts.

Equipment

The offices, laboratories, lecture and other rooms of the Electrical Engineering department are in the south end of Engineering. In the sub-basement are located the storage-battery and photometer rooms. The former will contain a battery of 70 cells, to be used for efficiency and output tests and also as a source of steady potential and current. The photometer room will be equipped with all necessary apparatus for determining the candle-power of arc and incandescent lamps as well as other sources of light. In the basement are situated the two machine laboratories, the larger containing the direct-current machinery, while the smaller accommodates the alternating-current apparatus. In the former, a 50 H. P., high-speed steam-engine drives a line shaft carrying pulleys controlled by friction clutches, to which the larger machines are belted. The arrangement of the engine and shaft is such that two dynamos of 30 kilo-

* Absent on leave for the academic year 1898-1899, during which time his lectures will be given by Prof. William A. Anthony.

watts each can be connected to the engine, or one dynamo connected to the engine, while the other is used as a motor to drive the line shaft, the current being obtained from the electric light and power plant of the University. In this way the breaking down of the motive power is rendered almost impossible and an excellent demonstration of the two methods of driving is made. The smaller machines are belted to a second line shaft, being mounted upon two long heavy tables, which brings them to a convenient height and also affords space for instruments, note-books, and the like.

The various dynamos which are belted to the two shafts include examples of 115- and 500-volt constant potential generators, constant current arc-lighting dynamos, and other typical machines. Several types of stationary and railway motors, as well as motor-dynamos are also placed in this room. Machine and hand tools are provided in one corner of this laboratory for making and repairing apparatus, attachments, and the like. Complete sets of ampere and volt meters, speed indicators, and transmission and absorption dynamometers, are available for testing the various dynamos and motors. In the Mechanical Engineering Laboratory is placed an electric car, fully equipped with motors and controlling apparatus. This is available for purposes of testing.

In the other machinery laboratory, the alternating-current apparatus is placed, including single-phase and polyphase generators, induction and synchronous motors, and various types and sizes of transformers. Each alternator is driven by a separate electric motor, enabling its speed to be independently regulated. Complete sets of alternating-current-measuring instruments and wave-tracing apparatus are also provided.

On the first floor are situated the smaller lecture-room (seating 70), ordinarily used for class work, and the larger lecture-room (seating 150) for combined classes. In Havemeyer, immediately adjoining, a still larger lecture-room (seating 350) is available for meetings and public lectures. All of these rooms are provided with an ample supply of electrical energy of different forms, as well as gas, water, and other facilities to enable experimental demonstrations to be conveniently and effectively performed. For example, dynamos, motors, and other apparatus of practical size are shown in actual operation to illustrate the lectures, this being made a special feature of the instruction.

The museum contains cases for the collection of apparatus, models, and materials relating to Electrical Engineering. This museum adjoins the lecture-rooms so that its contents can be conveniently used for illustrating the lectures.

On the third floor are located the large instrumental laboratory, the research room, and the studies of the officers. The laboratory contains a number of tables on which the instruments and apparatus are permanently set up ready for use. These include various forms of galvanometers, ampere balances, standard cells and resistances; apparatus for measuring inductance, magnetic permeability, hysteresis, and leakage; laboratory standard volt and ampere meters; telegraph and telephone, and electric signalling systems; thermo-electric and electrical heating devices; Roentgen ray apparatus. The research room is used for special post-graduate and thesis work, and is fitted up according to the lines of investigation that are being followed.

A most important facility is the large and reliable supply of electric power

which is afforded by the central power plant of the University. This consists of boilers having an aggregate capacity of 2000 H. P., two low-speed engines directly connected to two dynamos of 275 H. P. each, and two high-speed engines directly connected to two dynamos of 100 H. P. each. This electrical generating plant, having a total capacity of 750 H. P., and illustrating the latest and best practice in Electrical Engineering, furnishes current for electric lighting and for driving the motors and fans used in ventilating all of the buildings. Special conductors are also laid to convey to all the laboratories and lecture-rooms of the Electrical Engineering department an ample supply of current for experimental work. The power plant, on account of its magnitude and completeness, gives the students excellent opportunities to study the general economy of generating mechanical and electrical energy, as well as the individual operation of the various parts under practical conditions.

There is also available for the use of the electrical engineers, the Electrical Laboratory situated in the basement of Engineering, the work being carried on under the department of Mechanics.

Mechanical Engineering

FREDERIC R. HUTTON, C.E., Ph.D.....	<i>Professor</i>
RALPH E. MAYER, C.E.....	<i>Instructor</i>
IRA H. WOOLSON, E.M.....	<i>Instructor</i>
WILBUR G. HUDSON, E.E.....	<i>Assistant</i>
SAMUEL O. MILLER, C.E.....	<i>Assistant</i>
EDWARD L. COSTER.....	<i>Assistant</i>
CHARLES P. BENNS, M.E.....	<i>Instructor in Teachers College</i>
EDWIN A. FINCH.....	<i>Instructor in Teachers College</i>

Special students are admitted to the courses for which previous training may have fitted them. All courses intended for undergraduates in the Schools of Applied Science may be pursued by graduates of those or other schools of like grade and standing as graduates' courses, the instruction for such persons being carried further in specialization than the time available permits to candidates for undergraduate degrees. The instruction for such advanced students will be by prescribed reading, by problems assigned, and by work in the mechanical laboratories under individual instruction. These supplementary courses will vary in difficulty with the amount of time necessary according to the needs of the individual and the subject. Courses 10, 11, 12, and 13 are pre-requisites for all graduate courses. Experimental investigation is a special feature of such work in Courses 10 to 17, 19, 24, and 25.

Courses

1—Elementary mechanical drawing—Use of instruments, elementary projections, descriptive geometry, graphics, and stereotomy. 2 hours lectures and 5 hours drawing academy, first year; 2 hours lectures and 5 hours drawing academy, second year. Messrs. MAYER and MILLER

2—Specialized engineering drawing—Topographical and geological charts and maps; working and isometric drawing of machinery, furnaces, and struc-

tural work. Tracing and blue printing, and shop drawings. 2 hours lectures, 5 hours drawing academy, second year. Messrs. MAYER and MILLER

3 and 4—First-year shop-work—Carpentry, framing, and joinery, first half-year; wood-turning, pattern-making, moulding, and foundry-work, second half-year. 1 hour conference for instruction, and the equivalent of 2 afternoons shop-practice in the shops of Teachers College. Mr. FINCH

5—First-summer shop-work—Pattern-making and foundry-work. 100 hours in 3 weeks in June.

6 and 7—Second-year shop-work—Forging and blacksmith work, swaging, welding, and tempering, first half-year; pipe-fitting, bench-work, chipping, filing, tapping, threading, assembling, erection, and riggers' work with heavy masses; machine-tool work at lathe, planer, shaper, slotter, and milling-machine, second half-year. 1 hour conference for instruction, and the equivalent of 3 afternoons and Saturday mornings shop-practice in the shops of Teachers College. Mr. BENNS

8 and 9—Second-summer shop-work—Machine-tool work at lathe, planer, shaper, slotter, and milling-machine. 100 hours in 3 weeks in June.

10—Properties of materials and alloys—Fabrication and mechanical treatment of iron, steel, and alloys; ingot metals, steel castings, their composition, and their properties; rustless coatings, engineers' inspections, properties of alloys. General characteristics of timber for engineering uses; inspection of lumber and timber; preservative processes; methods of testing materials. 2 hours, second half of second year, and first half of third year. Mr. WOOLSON

11—Engineering of power plants—Steam-engines and their mechanisms, rotary engines, the single-acting engine, the mechanical features and construction of the condensing, compound, and multiple-expansion engines. 1 hour lecture with recitation, second half-year. Professor HUTTON

12—The steam-engine and its accessories—The power plant continued. Engine valve-gear, details of construction, erection, and setting, piping, accessories, and repairs. 2 hours lectures and recitations, first half-year. Professor HUTTON

13—The steam-boiler and its accessories—The power plant concluded. Typical forms, construction, accessories, wear and tear, repairs, tests, inspection, operation, and control. 2 hours lectures with recitations, second half-year. Professor HUTTON

14—Management and tests of boilers—Laboratory and power-house practice, arranged at convenience, by squads of students.

Course 14, taken with 19, 20, 21, 23, and 28, forms a major for the degree of A.M.

15—Operation and tests of engines—Laboratory and power-house practice, arranged at convenience of instructors and students.

16—Testing materials of engineering—Clinical conferences and work in the laboratory with testing machines upon tensile, transverse, compressive, torsional, and other resistances of structural and other materials. Afternoon

hours, alternating with mechanical and electrical laboratories and drawing-rooms. Messrs. WOOLSON and HUDSON

Courses 16, 22, and 28 may be taken together as a minor for the degree of A.M.

17—Mechanical engineering laboratory—Calibration of indicators, tests of gauges, standardization of dynamometers, tests of efficiency of mechanisms, and losses in transmission of power. Afternoon hours, alternating with testing and electrical laboratories and drawing-room. Messrs. WOOLSON and HUDSON

Course 17 may be combined with 23, 24, and 28, or with 18, 24, and 28, and these, when taken together, constitute a minor for the degree of A.M. Course 17, combined with 21, 22, 25, 27, and 28, will constitute a major for the degree of A.M.

18—Machinery and mechanism—Motion, velocity, transmissive principles, conversion of motion, teeth of wheels, general mechanism. 2 hours lectures and recitations. Mr. WOOLSON

Courses 17, 18, 24, and 28 taken together form a minor for the degree of A.M. Courses 17, 18, 19, 20, 21, 24, and 25 form a major for the same degree.

19—Heat and its applications—Fuels for motive power, combustion, transfer of heat, heating surface, generation of steam, chimneys, artificial draft, smoke prevention, use of steam in engines, super-heating; gas- and air-engines, combined vapor engines, ammonia and other vapor engines, air-compressors, refrigerating machinery. 3 hours lectures and recitations first half of fourth year. Professor HUTTON

Course 19, taken with 24 and 28, forms a minor for the degree of A.M. Course 19, taken with 14, 20, 21, 23, and 28, forms a major for that degree.

20—Motors other than steam—Animal, water, wind, and wave motors; turbines. 1 hour lecture, second half-year. Professor HUTTON

21—Dynamics of motors—Work of motors, dynamometers, governors, regulators, inertia, friction, and efficiency. 1 hour lecture, second half-year. Professor HUTTON

Courses 20 and 21, taken together with 23, 25, 27, and 28, count as a minor for the degree of A.M.; with 14, 19, 23, and 28, they form a major for the same degree, and can also be combined with 25, 27, and 28, and with 24 and 28.

22—Machine design and drawing—Graphic statics of mechanism, proportion of parts of machines, shop and working drawings. 1 hour, first half-year, and afternoon work in drawing-room. (To be assigned.)

See also under 16 and 17.

23—Valve-gearing for engines—Common valve-gear, polar diagram design, link-motions, cam-gears; variable cut-off mechanisms. 1 hour, and afternoon work in drawing-room. (To be assigned.)

See also under 14, 17, and 20.

24—Heat and steam-engineering laboratory—Tests upon the experimental steam-engine and air-compressor and air-engines; indicator and dynamometer work; determinations of heat units and water consumption, from theory and experiment. Afternoon hours, alternating with hydraulic and electrical laboratories and thesis work. (To be assigned.)

See also under 17, 19, 21, and 26.

25—Hydraulic engineering and motors laboratory—Verification of hydraulic formulæ for friction and efflux ; tests of motors and hydraulic machines. Afternoon hours, alternating with mechanical and electrical laboratories and thesis work. (To be assigned.)

See also under 17, 20, and 21.

26—Railway motive power and machinery—Types of locomotive engine, boiler, mechanism, running gear, compound locomotives, design and performance in hauling loads ; accessory features to the motive power ; railway machinery. 3 hours lectures, first part of first half-year. Professor HUTTON

Courses 24, 26, and 28 taken together form a minor for the degree of A.M.

27—Pumps, pumping, and special engines—Construction mechanisms, designs, types, valves, erection, management, efficiency, duty ; special forms of steam-engine for special duty. Special course of lectures, second part of second half-year. Professor HUTTON

28—Steam-engine design and advanced drawing. 2 hours. (To be assigned.)

See also under 17 and 21.

29—Shop and factory organization and management. 1 hour lecture. (To be assigned.)

30—Workshop economics and specifications—Cost of manufacture, shop accounts, wage systems ; specifications for economical manufacture. 1 hour lecture. (To be assigned.)

31—Marine engine design. (To be organized.)

32—Naval architecture. (To be organized.)

33—Ship-building. (To be organized.)

34—Marine auxiliaries. (To be organized.)

35—Vacation class in mechanical engineering—During the latter half of the school year visits are made to shops, factories, iron and steel works, and pumping stations, for the study of practice in these lines. The time occupied is variable according to circumstances. The instruction is conducted by Professor HUTTON and Assistants.

Optional.

36—Summer work between first and second years—Memoir or drawings.

37—Summer work between second and third years—Memoir or drawings.

38—Summer work between third and fourth years—Memoir, test, report, or special laboratory work as may be directed in each case by the Professor of mechanical engineering.

39—Graduation theses.

40—Special problems and original investigations in advanced mechanical engineering with conferences, laboratory work, and design as required. Prerequisite : all the courses offered in the department of Mechanical Engineering. Major for the degree of Ph.D.

Equipment

The department of Mechanical Engineering both has its own special equipment, and also enjoys the admirable and complete equipment of other departments for the use of its students.

THE WORKSHOPS are located in the Macy Manual Arts Building of Teachers College, 120th Street, and may be generally divided into two groups, each having a capacity for twenty workers at one time. The wood-working course is planned to lead up to pattern-making and foundry-work. The equipment includes usual benches for joinery and pattern-making with the necessary hand-tools, and for wood-turning a fine outfit of speed-lathes with their appurtenances. The foundry division has facilities for bench and floor moulding, and for limited work with sweeps. A carpenter shop with ordinary saw-benches, planers, and tools for profile-sawing is available for working up stock and special appliances.

The second division includes the shops for metal-working. For blacksmith work and forging are twenty Buffalo forges with anvils, tools, and vises. Blast is furnished by pressure blowers, and the hot gases and smoke are drawn out through exhaust hoods by a fan. A 30-pound Bradley power-hammer and a 400-pound Billings and Spencer drop-press are used to illustrate and enforce the application of the forge processes to manufacturing.

For metal-working by hand a special shop is equipped with vises for chipping, filing, scraping, and general bench-work. For machine-tool work a handsome and well-equipped shop contains engine-lathes, swinging from twelve to twenty inches, planers, shapers, drill-presses, universal milling machine, universal grinding machines, and the subsidiary appliances of the machine shop. A Jones and Lamson flat turret-lathe is used to familiarize the student with modern methods of rapid and economical production, and he is expected to learn its use in manufacturing processes. The tool-room is administered according to advanced standards in these matters, and a regular shop organization and atmosphere is aimed at. The department has also an amateur's lathe, the gift of friends to the University, with unusual attachments in the way of chucks, dividing head, and the like.

THE MECHANICAL LABORATORIES, properly so called, are located partly in the great basement annex area north of Engineering and beneath the esplanade in front of Havemeyer, partly in Engineering, and partly in the great Power House. Their area exceeds 9000 square feet, giving a length in one span of over 210 feet and a width of 32 and 35 feet. The five subdivisions are, respectively, the Locomotive Laboratory, the Steam and Motive-Power Engineering Laboratories, the Air- and Gas-Engine Laboratory, the Hydraulic Motors Laboratory, and the Testing Laboratories.

THE TESTING LABORATORIES, located partly at the north end of the main floor of Engineering, are equipped with high-grade testing machines for tensile, transverse, torsion, and compression tests. Their designs are of diverse types to give wide experience in handling, and they are fitted with the best and newest appliances for observing and recording deformations of test-pieces. The Emery Testing Machine of 150,000 pounds capacity is a marvel of accuracy and sensitiveness, and is used as a standard of reference. The others

of 50,000 pounds and 100,000 pounds capacity, respectively, are of the usual commercial types, and include Keep's series. Practical and scientific tests and investigations, such as arise in a great industrial centre like New York City, are continually in progress at the side of the work of the students.

THE STEAM AND MOTIVE-POWER ENGINEERING LABORATORY occupies an area of 84×35 feet in the centre of the great laboratory space, and has been made a memorial to the late Edward P. Allis by the gift of the principal features of its equipment through Mr. William W. Allis of Milwaukee. It contains a triple-expansion Reynolds Allis-Corliss steam-engine of 150 H.P., fitted with complete apparatus for condensing and weighing the steam used in tests. This engine is also the source of motive power for the other machinery. In addition, this steam-engine by an easy change can be coupled to additional air cylinders and thus will be transformed into a three-stage air compressor, fitted to compress air to 250 pounds pressure into proper storage reservoirs, thus permitting the engine to be converted into an experimental steam-engine of widest range of speed condition and capacity for test. The compressed air, moreover, can be stored and compressed a second time, or can be expended in a third engine, thus completing the cycle of transformations of energy. A two-stage or compound steam air compressor has also been presented to the laboratory by the Ingersoll-Sergeant Drill Co., having a capacity for compressing air to 100 pounds pressure. The steam cylinders are 10 and 17 inches, and the air cylinders $14\frac{1}{4}$ and $9\frac{1}{4}$ inches, with a common stroke of 12 inches. The compressed air from the engine is used for driving other motors for test of their operation, and in supplying a constant head for hydraulic machinery and for other uses.

The ordinary type of power-house engine is represented by engines designed and built by McIntosh and Seymour, the New York Safety Steam Power Co., the Westinghouse Engine Co., and others; special mechanisms are illustrated by engines of the oscillating type, and a fly-wheel pump; and a historic interest attaches to a unique engine built by the late Mr. John C. Hoadley in 1873 to incorporate his design of shaft governor. It can be operated either as a horizontal or a vertical engine. A De Laval steam turbine of 10 H.P. runs at the phenomenal speed of 25,000 turns per minute and is an interesting subject for test and experiment by the students. A Wheeler surface condenser of 40 H.P. capacity, a gift from its designer, Mr. F. M. Wheeler, with its weighing tanks and scales, enables steam and heat consumption per unit of power to be observed and calculated in connection with these machines. Forming a part also of this section are the power-plant engines of other departments of the University, enumerated elsewhere in detail, which are available for test and experiment in their permanent locations as parts of the administrative plant. The machinery of transmission in this section, which carries power from the Allis engine or the McIntosh-Seymour engine, is a model plant presented to the laboratories as a memorial of the late Wallace H. Dodge by the Dodge Manufacturing Co. of Mishawaka, Ind. A pair of typical continuous rope-drives on the American system transmit 150 H.P. to a first or principal jack-shaft, fitted with clutches and usual appliances, and from this shaft to a secondary one is another transmission illustrating the action of reversible direc-

tion of the motor engine. These shafts are used as origin of motion for tests of machinery, efficiencies of transmission types of dynamometers, and similar expert work of students. Beside the usual belt and other standard transmission, this section has examples of clutches for test, and the friction gear of the Rockwood Co. of Indianapolis, presented to the laboratories by that Company; there are also dynamometers of the transmission and absorption types, and usual appliances for oil testing and speed recording. There are tachometers, anemometers, calorimeters, pyrometers, thermometers, and other weighing and measuring apparatus, together with a growing collection of steam-engine indicators and the fixtures for standardizing and calibrating them. The laboratory also exhibits a full line of steam-boiler injectors, mounted and connected to steam and water for display and experiment.

THE SECTION OF DIRECT-COMBUSTION ENGINES, illustrating motors using other media than steam as heat-carrier, embraces two Otto gas engines, one of 10 H.P., purchased by the department, and one of 15 H.P., the gift of Mr. S. D. Coykendall of Rondout; a 10 H.P. Nash engine, a Hornsby-Akroyd oil engine, and an Ericsson and a Rider caloric pumping engine. This machinery is installed for the present in the Power House, and the section will be strengthened as opportunity may offer.

THE LOCOMOTIVE LABORATORY, OR LABORATORY OF TRANSPORTATION ENGINEERING, forms a department of the mechanical laboratories, which is made significant by the presence of the full-sized passenger express locomotive engine "Columbia," presented to the department by the Baldwin Locomotive Works of Philadelphia. It is a standard-gauge engine, of the Vauclain compound type, having four cylinders, and a power represented by 1600 H.P. It is mounted upon friction wheels, fitted with brakes and dynamometers, whereby it can be run at any speed in place up to sixty miles an hour by steam from its own boiler, while observations on tractive power, steam distribution, and coal and water consumption are conveniently made. The University is indebted to friends for the funds necessary to install and mount the engine. Furthermore, the locomotive can be connected to the compressor of the Allis laboratory, and can be operated as a compressed-air locomotive for test and experiment, up to 100 H.P.

By the generous interest of its builders, a standard trolley car, with electric motors, is installed at the side of the Baldwin locomotive, similarly mounted for operation and test of their efficiency as means of applying and distributing energy from a central generating plant.

The hydraulic elevator in Engineering has been made, by the gift of Otis Brothers, a piece of laboratory apparatus of unique value, by being fitted with special facilities for the study of the mechanics and problems of hoisting. The ventilating machinery of the laboratory is also likely to be specially adapted for experiment and test in pneumatics by calibrated orifices, gauges, and similar appliances.

A fine glass mercury column with a height of 100 feet is to be installed in the elevator shaft when the latter is ready to receive it.

THE HYDRAULIC MOTORS LABORATORY, occupying a space of 67 feet long and 32 feet wide, is at the east end of the laboratory, and has been made a

memorial gift by Mr. Charles C. Worthington, and is known as the Henry R. Worthington Laboratory. It has great tanks below the floor level of 4000 and 7000 gallons capacity, which supply the pumping machinery, and into which the motors discharge. The first pumping engine is of the duplex triple-expansion low-pressure type, having a capacity of 1000 to 1500 gallons a minute against a head of 50 pounds pressure. The steam cylinders are 6, 9, and 16 inches diameter, and the water plungers 13 inches diameter, with a common stroke of 15 inches. The second pump has steam cylinders 18½ inches, and water plungers of 4 inches diameter, with a stroke of 10 inches, and is intended to pump against 1500 pounds pressure, which is maintained constant by a steam accumulator of 33 and 8½ inches diameter, whose plunger has a motion of 5 feet. The third great pump, with steam cylinders of 14½ inches and water cylinders of 1½ inches respectively, and a common stroke of 10 inches, can pump against a maintained pressure of 5000 pounds per square inch, and has also its steam accumulator of 29 and 4½ inches respectively, and a plunger motion of 4 feet. The lower pressure accumulator works horizontally, and the higher pressure one is arranged vertically. The low-pressure pump discharges into a welded steel cylindrical tank, within which controllable pressure is maintained from the air compressors, so as to do away with the usual stand-pipe for head of flow. The high-pressure pumps are supplied from an overhead suction tank fed by a 6- x 5¾- x 6-inch low-service pump, and for weir measurements a specially constructed weir-tank with baffles and calibrated measuring tanks should enable large scale observations to be made with hook-gauge readings closely accurate.

An 8-inch Venturi meter, the gift of the Builders' Iron Foundry of Providence, hydraulic rams, the gift of the Douglas Manufacturing Co. and of the Rife Hydraulic Engine Co., impulse water wheels of Pelton and Cazin type, and a Leffel turbine have been recently supplemented by two large capacity centrifugal pumping machines. One is the gift of the Morris Machine Co. of Baldwinsville, N. Y., and has its directly coupled engine, and the other is the gift of the Lawrence Machine Co., through Mr. William O. Webber of Boston. Other motors will be added as circumstances permit.

THE POWER PLANTS of the University at the Morningside site, and at the College of Physicians and Surgeons, at 59th Street and Tenth Avenue, offer unusual facilities for test and investigations on a considerable scale, and add the strength of this administrative equipment to the distinctly laboratory equipment listed above. Students of mechanical engineering are permitted to have access to all this additional machinery.

THE DRAFTING-ROOMS on the top floor of Engineering are splendidly lighted and of very large extent, and are fitted not only with the best forms of drawing tables and furniture, but also with extensive collections of patterns, models, and illustrative drawings, blue prints, photographs, and prints, which are useful both as copies and for training in design. Sectional models of actual machines and structural material are abundant, and for the study of projection, stone-cutting, and warped surfaces, an unexcelled collection is at the service of students. A set of the Ollivier models, in which the elements of surfaces are represented by tense-threads, is a notable feature of these collec-

tions. In connection with the drafting-rooms is a room for blue printing and other solar work, and a photographic dark room.

THE CABINETS OR MUSEUM COLLECTIONS OF MECHANICAL ENGINEERING are located on the first or main floor of Engineering at the right of the entrance. They are subdivided into three groups or alcoves. In the first are exhibited models, specimens and samples of the appliances and material referred to in the lectures on steam and motive-power engineering; the second exhibits mechanisms, gearing and appliances for the transmission of power and conversion of motion; while the third is specially rich in specimens illustrating the properties of engineering materials, and particularly their behavior under strain, their methods of fracture, and the effects of corrosion, abrasion, impact, and the like. Some of these exhibits are unique. Much of similar illustrative material will be found also in drawing-room, class-rooms, and in the testing laboratory itself.

LECTURE AND CLASS-ROOM ILLUSTRATION is effected by extensive use of material from the collections, and of photographs exhibited as lantern-slides by projection in an illuminated room, by drawings and blue prints, and by electrotpe prints and wall diagrams. Great service is made also of type-written monographs and notes manifolded and distributed to the student.

Summer and Vacation Work

To derive the advantages possible from continuous work in the shop, two summer classes are maintained, each covering about one hundred working hours, beginning June 1. If necessary another similar term will be arranged for September. These form parts of the regular shop-work course of Mechanical Engineering, but are also intended to permit students from other schools, where these facilities are lacking, to comply with the requirements of the regular course by extra application and overtime work.

During the session, and on occasional holidays, students are given opportunities to visit engineering works, machine shops, factories, and industrial establishments in the city and its environs. More elaborate excursions are arranged for the late years to special places or districts, under the supervision of the professors or instructors. The summer between third and fourth years is intended to be specially used for work in connection with the final thesis, or in tests, or in actual running of machinery.

ENGLISH

English Language and Literature

* THOMAS RANDOLPH PRICE, M.A., LL.D.	<i>Professor</i>
ABRAHAM VALENTINE WILLIAMS JACKSON, Ph.D.	<i>Professor</i>
GEORGE EDWARD WOODBERRY, A.B.	<i>Professor</i>
BRANDER MATTHEWS, A.M., LL.B.	<i>Professor</i>
SAMUEL SWAYZE SEWARD, Jr., A.M.	<i>Assistant</i>

Course 1 is open to freshmen.

Courses 2, 11, and 13 are open to sophomores, juniors, seniors, and to university students.

* Absent on leave, 1898-1899.

Courses 3 and 4 are open to students who have taken Course 2 or are taking that course.

Courses 2, 3, 4, 14, 15, and 16 are intended primarily for candidates for the degree of Bachelor of Arts, and may not be counted by themselves towards the degree of Master of Arts or Doctor of Philosophy.

Courses 5, 6, 7, 8, and 10 are open to graduates and also to women and to auditors.

Women wishing to enter any of the courses as special students or as candidates for a degree must register through Barnard College.

Courses

1—General history of literature—Lectures with study of texts. 3 hours. Professor WOODBERRY and Mr. SEWARD

2—Anglo-Saxon language and historical English grammar. 2 hours. Mr. SEWARD

3—Anglo-Saxon literature—poetry and prose. 2 hours. Professor JACKSON

4—Chaucer—language, versification, and method of narrative poetry. 2 hours. Professor JACKSON

5—English language and literature of the eleventh, twelfth, and thirteenth centuries—Reading of authors, with investigation of special questions and writing of essays. 2 hours. Professor PRICE

Not given in 1898-99.

6—English language and literature of the fourteenth century exclusive of Chaucer, and of the fifteenth century—Reading of authors, with investigation of special questions and writing of essays. 2 hours. Professor PRICE

Not given in 1898-99.

7—English language and literature of the sixteenth century—Reading of authors, with investigation of special questions and writing of essays. 2 hours. Professor JACKSON

Courses 7, 5, and 6, designed for the careful study of the language and literature of early and middle English periods, will be given successively in 1898-99, 1899-1900, and 1900-01.

8—Anglo-Saxon prose and historical English syntax.—Text: Prose in Sweet, Bright, and Grein. Investigation of special questions and writing of essays. 2 hours. Professor PRICE

Not given in 1898-99.

10—English verse forms—Study of their historical development. 2 hours. Professor PRICE

Not given in 1898-99.

11—The history of English literature from 1789 to the death of Tennyson—Lectures. 3 hours. Professor WOODBERRY

12—The history of English literature from 1660 to 1789—Lectures. 3 hours. Mr. KROEBER

13—The history of English literature from the birth of Shakspeare to 1660.

with special attention to the origin of the drama in England and to the poems of Spenser and Milton. 3 hours. Professors JACKSON and WOODBERRY

Not given in 1898-99.

Courses 12 and 13 are given in alternate years.

14—Pope—Language, versification, and poetical method.—Text: Ward's edition of Pope's Works. 2 hours. Professor PRICE

Not given in 1898-99.

15—Shakspere—Language, versification, and method of dramatic poetry.—Text: Cambridge text of Shakspere. 2 hours. Professor JACKSON

16—American literature. 2 hours. Professor BRANDER MATTHEWS

Literature

GEORGE EDWARD WOODBERRY, A.B.....	<i>Professor</i>
BRANDER MATTHEWS, A.M., LL.B.....	<i>Professor</i>
GEORGE RICE CARPENTER, A.B.....	<i>Professor</i>
HENRY OSBORN TAYLOR, A.B., LL.B.....	<i>Lecturer</i>
SAMUEL SWAYZE SEWARD, Jr., A.M.....	<i>Assistant</i>

Course 1 is open to seniors in Columbia College and to university students. It may not by itself be counted for the degree of Master of Arts or Doctor of Philosophy. Course 2 is open to juniors who have taken English 13 and to seniors in Columbia College and to university students. It cannot be counted for the degree of Master of Arts or Doctor of Philosophy. Courses 3, 4, 5, 6 are open to university students only. Courses 7, 8, 9, 10, 11 are open to university students and to auditors and to women who are candidates for the degree of Master of Arts or Doctor of Philosophy.

Courses

1—The history of modern fiction. 2 hours. Professor BRANDER MATTHEWS

2—The theory, history, and practice of criticism, with special attention to Aristotle, Boileau, Lessing, and English and later French writers, with a study of the great works of the imagination. 3 hours. Professor WOODBERRY

3—Epochs of the drama—Greek, Latin, Spanish, English, French, German, Scandinavian. 2 hours. Professor BRANDER MATTHEWS

Alternates with Course 4. Not given in 1898-99.

4—Dramatists of the nineteenth century. 2 hours. Professor BRANDER MATTHEWS

Given in 1898-99 and each alternate year thereafter.

5—Molière and modern comedy. 2 hours. Professor BRANDER MATTHEWS

6—The evolution of the essay. 1 hour. Professor BRANDER MATTHEWS

Not given in 1898-99.

7—Studies in literature, mainly critical—selected works, in prose and verse, illustrating the character and development of national literatures—Lectures. 3 hours. Professor WOODBERRY

Open to university students and to auditors.

8—Studies in literature, mainly historical ; subject for 1898-99 : The mediæval epic—Conferences. 2 hours. This course is in part one of research. MR. TAYLOR

Open to university students and to auditors.

9—Types of mediæval and Renaissance literature—Traces the development of lyric poetry in the more important literatures of the middle ages. Students who elect this course are recommended to consult the instructor in advance as to the best disposition of their summer reading in preparation for it. 3 hours. Professor G. R. CARPENTER

Open to university students and to auditors.

Not given in 1898-99.

10—Hellenism : Its origins, developments, and diffusion, with some account of the civilizations that preceded it—Lectures and conferences. 3 hours. Mr. TAYLOR.

Open to university students and to auditors.

11—Literary phases of the transition from paganism to Christianity, with illustrations from the other arts of expression—Lectures and conferences. 1 hour. Mr. TAYLOR

Open to university students and to auditors.

Seminar. Professor WOODBERRY

Open to students who have taken Courses 7, 8, and 9.

Seminar. Professor BRANDER MATTHEWS

Open to university students who take or have taken Courses 3, 4, or 5.

Rhetoric and English Composition

GEORGE RICE CARPENTER, A.B.	Professor
WILLIAM TENNEY BREWSTER, A.M.	Tutor
GEORGE C. D. ODELL, Ph.D.	Tutor
ALFRED LOUIS KROEBER, A.M.	Assistant
PHILIP ERNEST BRODT, A.B.	Assistant
WELLINGTON PUTNAM,	Lecturer

Courses

A—Rhetoric and English composition—Carpenter's *Exercises in Rhetoric and English Composition*. Recitations, weekly themes ; in the second half-year lectures on certain English and American authors as models of style. 3 hours. Professor G. R. CARPENTER, Mr. BREWSTER, Dr. ODELL, and Mr. KROEBER

Prescribed for freshmen in the College.

B—Practice in various kinds of English composition—Fletcher's *Introduction to Theme-Writing*. Fortnightly essays, lectures, and consultations. 1 hour. Mr. BREWSTER, Dr. ODELL, and Mr. KROEBER

Prescribed for sophomores in the College. Pre-requisite : Course A.

C—Argumentative composition—Four essays, consultations. Mr. BRODT

Prescribed for juniors in the College. Pre-requisite : Course B.

1—English composition—Daily themes and fortnightly essays, lectures, and consultations. 3 hours, first half-year. Professor G. R. CARPENTER

Open as an elective to juniors and seniors in the College. Pre-requisite: Course B.

2—English composition—Lectures and discussions with regard to style; essays and other written work. 3 hours, second half-year. Professor G. R. CARPENTER

Open as an elective to juniors and seniors in the College. Pre-requisite: Course 1.

3—English composition (advanced course)—Essays, lectures, and consultations. Dr. ODELL

Open as an elective to students who have taken Course 2 or its equivalent, and to auditors.

4—Elocution—Lectures and exercises. 2 hours. Mr. PUTNAM

Open to sophomores, juniors, and seniors in the College.

5—The art of English versification. Professor BRANDER MATTHEWS

Open to seniors in the College and to university students. Not given in 1898-99.

6—Argumentative composition—Lectures, briefs, essays, and oral discussions. 3 hours, counting as a two-hour course. Mr. BRODT and Mr. PUTNAM

Open to students who have passed in Course B with a grade of at least C.

7—Seminar—Subjects for 1898-99: the rhetorical doctrine of good use; the teaching of formal rhetoric. 2 hours. Professor G. R. CARPENTER

Open to seniors in the College, university students, and auditors.

French

(See page 166)

Genito-Urinary and Venereal Diseases

ROBERT W. TAYLOR, M.D.....	<i>Clinical Professor</i>
JAMES R. HAYDEN, M.D.....	<i>Chief of Clinic</i>
WILLIAM C. GILLEY, M.D.....	<i>Clinical Assistant</i>
EDMOND Y. HILL, M.D.....	<i>Clinical Assistant</i>
JOHN B. STEIN, M.D.....	<i>Clinical Assistant</i>
E. L. WILLIAMSON, M.D.....	<i>Clinical Assistant</i>
W. B. BROUNER, M.D.....	<i>Clinical Assistant</i>
C. C. RATHBONE, M.D.....	<i>Clinical Assistant</i>
W. D. TRENWITH, M.D.....	<i>Clinical Assistant</i>

Courses

1—Venereal and genito-urinary diseases—Clinical lectures at the Vanderbilt Clinic. 2 P.M., Thursday. 1 hour. Professor TAYLOR

Required, in the third year, of candidates for the degree of M.D.

2—Practical instruction at the Vanderbilt Clinic in the diagnosis and treatment of venereal and genito-urinary diseases—12 lessons for each student. Dr. HAYDEN

Required, in the third year, of candidates for the degree of M.D.

3—Hospital clinics in venereal and genito-urinary diseases—Bellevue Hospital, Tu. at 3 P.M. throughout the academic year. Professor TAYLOR

The Bellevue Hospital clinics are optional in the third and fourth years for candidates for the degree of M.D.

Geology

JAMES FURMAN KEMP, A.B., E.M. *Professor*

ALEXIS ANASTAY JULIEN, Ph.D. *Instructor in Geology and Curator*

ARTHUR HOLLICK, Ph.B. *Tutor*

GILBERT VAN INGEN *Curator of the Geological Collections*

Courses

1—General geology—First half-year, physical geology, with practical work in the rock collections under the lithological part of the subject; second half-year, stratigraphical and historical geology, involving laboratory work with type fossils and collections illustrating the geology of the United States. Text-book: Le Conte's *Elements of Geology*. 2 hours lectures, including laboratory work. Mr. HOLLICK

Elective for juniors and seniors in the College.

2—General geology—A more elaborate discussion of the subjects treated in Course 1. Text-books: Scott's *Introduction to Geology* and Kemp's *Handbook of Rocks*. 3 hours lectures. Professor KEMP, Dr. JULIEN, and Mr. VAN INGEN

Required of all third-year students in the course in Civil Engineering; of second-year students in the School of Mines. Elective for seniors in the College who have not had Course 1.

3—Economic geology—First half-year, discussion of the general features and formation of ore bodies, followed by a description of the deposits of the ores of iron, copper, lead, zinc, silver, gold, and the lesser metals, with especial reference to North America; second half-year, a description of the distribution and occurrence of coal, petroleum, natural gas, asphalt, building-stone, water supply, salines, and minor minerals. Text-book: Kemp's *Ore Deposits of the United States*, and lecture notes privately printed. 3 hours lectures and conferences. Professor KEMP

Required of all third- and fourth-year students in the School of Mines during 1898-99.

Elective for seniors in the College who have had Course 1 or 2 or an equivalent. Open, with two additional hours weekly of collateral reading, to candidates for the degrees of A.M. and Ph.D. whose minor subject is Geology.

4—Petrography—A short course in the microscopic study of rocks. Follows Mineralogy 6. 2 lectures and one afternoon, two months of the second half-year. Professor KEMP and Dr. JULIEN

Required of second-year students in the School of Mines.

6—Petrology—A discussion of the origin, microscopic structure, and mineralogical composition of the crystalline rocks, and of metamorphism. 2 hours lectures, 4 hours or more laboratory. Professor KEMP

Pre-requisite: Optical Mineralogy.

Open to candidates for the degrees of A.M. and Ph.D. whose major or minor subject is Geology.

Not given in 1898-99.

7—Invertebrate palæontology—A general description of invertebrate fossils, following the biological sequence. Text-books : Zittel's *Handbuch der Palæontologie*, vol. i., and Nicholson's *Manual of Palæontology*. 2 hours lectures, 4 hours or more laboratory. Mr. VAN INGEN

Pre-requisite : Biology 1. Open to candidates for the degrees of A.M. and Ph.D. whose major or minor subject is Geology.

8—Comparative geology—A comparative description and study of the geological formations of the globe, in their areal distributions and taxonomy. Text-books : *Correlation Bulletins of the U. S. Geological Survey*, Kayser's *Text-Book of Comparative Geology*, and the manuals of Geikie, Dana, and De Lapparent. 2 hours lectures and at least 4 hours reading and laboratory. Professor KEMP for the crystalline and pre-Cambrian rocks ; Mr. VAN INGEN for the fossiliferous.

Open to candidates for the degrees of A.M. and Ph.D. whose major or minor subject is Geology.

9—Palæobotany—A study of fossil plants, following the biological sequence. Text-books : Zittel's *Handbuch der Palæontologie*, vol. ii., and Solms-Laubach's *Palæophytology*. 1 hour lecture or conference, 4 hours laboratory or reading for two years. Mr. HOLLICK

Pre-requisite : Botany 1. Open to candidates for the degrees of A.M. and Ph.D. whose major or minor subject is Geology.

10—Geological examinations and surveys—A discussion of the methods of systematically recording and interpreting geological phenomena ; and of the organization and scope of geological surveys on a larger scale. This will be followed by a sketch of the history and results of state and national geological surveys in this and other countries, and of other sources of detailed information regarding local geology. 1 hour. Professor KEMP

11—As a thesis subject which will furnish a major course for the concluding year of study for the degree of Doctor of Philosophy, some suitable subject will be assigned.

Summer School

12—The Trustees of the University have made an appropriation for a summer school in geology, which defrays the expenses of a small squad of advanced students for about one month each summer, with the Professor of Geology or some other officer of the department. During the college year, excursions are offered to points of geological interest near New York, on all Saturdays and holidays of the fall and spring. Few other localities afford so extensive and so accessible exposures as the vicinity of New York.

13—Field geology between the third and fourth years (*optional between the second and third years*)—The summer school in geology is held in connection with the summer school in practical mining, and at least one week is devoted to field work. Professor KEMP, Mr. HOLLICK, or Mr. VAN INGEN

Equipment

The department of Geology is located in the west wing of Schermerhorn, and occupies three floors. The museums and laboratories in palæontology are in the basement ; the museum of economic geology is on the second floor, and the lecture-room, library, and main laboratory are on the third floor. The museums afford very complete series of illustrative material in the branches covered. The laboratory is also fully equipped with the collections and apparatus necessary to the pursuit of microscopic petrography. The library of the late Professor Newberry forms the principal part of the departmental library, and contains many rare books and pamphlets.

The University has an arrangement with the American Museum of Natural History which secures for advanced students especial privileges in its collections. As these contain among others the valuable and unique collection of Palæozoic fossils made by James Hall, the privilege is of especial consequence to students of palæontology.

Germanic Languages and Literatures

WILLIAM HENRY CARPENTER, Ph.D. *Professor of Germanic Philology*
 CALVIN THOMAS, A.M. *Gebhard Professor of the Germanic Languages
 and Literatures*

EUGENE HOWARD BABBITT, A.B. *Instructor*
 WILLIAM ADDISON HERVEY, A.M. *Tutor*
 RUDOLF TOMBO, Ph.D. *Tutor*

The department, as its name implies, offers instruction, not only in German, but in the kindred languages and literatures of the other members of the Germanic group. In German the aim of the instruction is primarily to enable students to use the modern language with facility in reading, writing, and, as far as possible, in speaking, and to acquaint them with the masterpieces of German literature. Opportunity is also given to acquire a reading knowledge of the languages of the other Germanic nations, and to study their literatures. Parallel courses are arranged in such a way that while both language and literature are combined in the earlier courses, either side may be subsequently emphasized at will. Courses are also given in the philology of the whole Germanic group. Work supplementary to the lectures is given in the Seminar.

The courses offered by the department are grouped under the following heads: German, Scandinavian, Dutch, Gothic, and Germanic Philology.

Course **A** is required of freshmen in the College who did not present German at entrance and do not elect Course **1**; Course **1** is equivalent to Course **A** plus a three-hour freshman elective; Course **2** is open to students who have presented elementary German at entrance; Courses **3**, **4**, and **5** are equivalent courses, open to students who have taken Course **1**, **2**, or the advanced entrance examination; Courses **6**, **8**, and **9** are open to students who have taken Course **3**, **4**, or an equivalent; Course **7** is open to students who have taken Course **6**, or an equivalent; Courses **10**, **11**, **12**, **13**, **14**, **15**, **16**, **17**, and **18** are open, with the permission of the instructor, to seniors; Courses **A**, **1**,

2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18 are open to all university students. The Seminar is open to advanced students only.

Courses 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18 are open to auditors.

Courses in German

A—Elementary course. Thomas, *Practical German Grammar*; Harris, *German Reader*; easy stories and plays. 3 hours. Mr. HERVEY and Dr. TOMBO

Prescribed for freshmen who did not present German at entrance.

1—Longer elementary course. 6 hours. Mr. BABBITT and Dr. TOMBO

Equivalent to the prescribed German of the freshman year, and a three-hour freshman elective. First half-year identical with Course **A**; in second half-year more difficult prose, by such authors as Heine, Riehl, and Freytag.

Open to others than freshmen only by consent of the Dean and of the instructor in charge.

2—Grammar, reading, and composition. 3 hours. Mr. BABBITT and Dr. TOMBO

The text-books and plan of work are in general the same as those of the second half-year of Course **1**.

Open to students who have presented elementary German at entrance.

Students who have taken Course **1** or **2** will be prepared to join Course **3**, **4**, or **5** at the beginning of the second year, either of which will be accepted as an equivalent of the reading knowledge of German required of candidates for the degree of Doctor of Philosophy in the School of Philosophy.

3—Selected works of Goethe, Schiller, and Lessing. 3 hours. Mr. HERVEY

The following works were read in 1897-98: Lessing, *Minna von Barnhelm*, *Laokoön*, *Nathan der Weise*, *Emilia Galotti*; Schiller, *Die Piccolomini*, *Wallensteins Tod*, *Maria Stuart*, *Die Jungfrau von Orleans*; Goethe, *Götz von Berlichingen*, *Iphigenie auf Tauris*, *Hermann und Dorothea*.

The works to be read in 1898-99 will be chosen from those read in 1897-98, and the following: Schiller, *Wilhelm Tell*, *Don Carlos*; Goethe, *Egmont*, *Torquato Tasso*, *Dichtung und Wahrheit*.

4—Historical prose. One volume of Freytag's *Bilder aus der deutschen Vergangenheit*, and other works of a historical or biographical character. 3 hours. Mr. BABBITT

5—Scientific German. Brandt and Day, *German Scientific Reading*, and various scientific monographs. 3 hours. Dr. TOMBO

3, 4, and 5 are equivalent courses, open to students who have taken Course **1**, **2**, or its equivalent.

6—History of German literature from the earliest times to the 19th century. Lectures, themes, and readings from Müller's *German Classics*. 2 hours. Professor THOMAS

Open to students who have taken Course **3**, **4**, or its equivalent.

7—Goethe's *Faust*: First and second parts. Lectures and recitations. 2 hours. Professor THOMAS

Open to students who have taken Course **6**, or its equivalent.

8—Practice in speaking and writing German. Talks, conferences, and themes, all in German, upon linguistic and literary topics. 2 hours. Dr. TOMBO

Open to students who have taken Course 3, 4, or its equivalent.

9—History of the German language. Lectures and texts. 2 hours. Professor W. H. CARPENTER

Open to students who have taken Course 3, 4, or its equivalent.

10—Great German writers. Schiller (first half-year) and Herder (second half-year). 2 hours. Professor THOMAS

Open, with the permission of the instructor, to seniors and to all university students.

11—Old High German. Lectures and texts. 2 hours. Professor W. H. CARPENTER

Open, with the permission of the instructor, to seniors and to all university students.

Courses in Scandinavian

12—Swedish. Elementary course in the language, with miscellaneous reading, and a general survey in lectures of the history of Swedish literature. 2 hours. Professor THOMAS

Open, with the permission of the instructor, to seniors and to all university students.

Swedish will be omitted in 1898-99 and 1899-1900, its place being taken respectively by Danish and Dutch; it will be given in 1900-1901.

13—Danish. Elementary course in the language, with miscellaneous reading, and a general survey in lectures of the history of Danish literature. 2 hours. Professor THOMAS

Open, with the permission of the instructor, to seniors and to all university students.

14—Icelandic. Elementary course. Sweet, *Icelandic Primer*; Kahle, *Altisländisches Elementarbuch*. 2 hours. Professor W. H. CARPENTER

Open, with the permission of the instructor, to seniors and to all university students.

Elementary Icelandic will be omitted in 1898-99, its place being taken by the advanced course; it will be given in 1899-1900.

15—Icelandic. Advanced course. The Elder Edda. Lectures and texts. Professor W. H. CARPENTER

Open, with the permission of the instructor, to seniors and to all university students.

Course in Dutch

16—Dutch. Elementary course in the language, with miscellaneous reading, and a general survey in lectures of the history of Dutch literature. 2 hours. Professor W. H. CARPENTER

Open, with the permission of the instructor, to seniors and to all university students.

Dutch will be omitted in 1898-99; it will be given in 1899-1900.

Course in Gothic

17—Gothic. Wright, *Primer of the Gothic Language*; Streitberg, *Gotisches Elementarbuch*; Bernhardt, *Die gotische Bibel*. 2 hours. Professor W. H. CARPENTER

Open, with the permission of the instructor, to seniors and to all university students.

Gothic will hereafter be given every second year, being omitted in 1898-99; it will be given in 1899-1900.

Course in Germanic Philology

18—General introduction to Germanic philology. Lectures and exercises. 2 hours. Professor W. H. CARPENTER

Open, with the permission of the instructor, to seniors and to all university students.

Seminar

Germanic Seminar—Old Saxon. Critical study of the *Heliand* (first half-year). The beginnings of German Romanticism (second half-year). Professor W. H. CARPENTER and Professor THOMAS

The Seminar is open to advanced students only. Attendance at the meetings is obligatory upon candidates for the degree of Doctor of Philosophy whose major subject lies in this department.

Public Lectures

A course of lectures in the German language on popular subjects, intended primarily for the students of the University, but to which the general public is also invited, is given yearly under the auspices of the department.

Equipment

The University Library offers excellent facilities for the study of German, both on the literary and the linguistic side. In German literature most periods are well represented, and few of the minor authors are omitted. The Goethe collection, which consists of more than 1200 titles, affords to the student of Germany's greatest author an unrivalled opportunity for the prosecution of his researches. The Scandinavian collection contains a fair representation of the ancient saga and poetical literature, and most of the eminent writers of modern Norway, Denmark, and Sweden.

The Library has sets and the current numbers of the important periodicals which deal with Germanic literature and Germanic and general philology.

It has also sets of periodicals no longer published, and a large collection of the transactions and publications of the learned societies of America and Europe.

Greek

(Including *Archæology and Epigraphy*.)

EDWARD DELAVAN PERRY, Ph.D.	Jay Professor
JAMES RIGNALL WHEELER, Ph.D.	Professor
CLARENCE HOFFMAN YOUNG, Ph.D.	Instructor
JAMES DENNISON ROGERS, Ph.D.	Assistant
MORTIMER LAMSON EARLE, Ph.D.	Lecturer

Courses **A, B, 3, 5, 6, 7,** and **15** are closed to women. Courses **10, 12, 17, 19, 20, 21, 22, 24, 30,** and the Seminar are open to women on the same terms as to men. Women wishing to enter any of these courses, whether as special students or as candidates for a degree, must register through Barnard College, except that students of Teachers College may register direct.

Courses **9, 10, 17, 18, 19, 20,** and **24** are open to auditors.

Courses

A—Elementary course. 5 hours, counting as a three-hour course. Dr. ROGERS

Open to students who did not present Greek at entrance, to freshmen as an elective, to others as an optional course.

B—First half-year: Selected Orations of Lysias. Second half-year: Homer's *Odyssey*, four books. Greek prose composition fortnightly throughout the year. 3 hours. Dr. YOUNG and Dr. ROGERS

Open as an elective to freshmen in Columbia College who presented Greek at entrance, and to sophomores who have taken Greek A; to others as an optional course.

An additional hour weekly will be offered to those students who may desire it, and Course B may then be counted as a four-hour course. This hour will be devoted during the first half-year to a brief survey of the subjects of Greek archaeology and Greek antiquities, and during the second half-year to the reading of some Attic prose work.

3—First half-year: Euripides' *Hecuba* or *Iphigenia in Tauris*; Sophocles' *Philoctetes*; required reading (in English, French, or German, at the option of the student) and lectures on the Greek drama. Second half-year: Demosthenes, *Olynthiac* and *Philippic Orations*, with required reading as above. 3 hours. Dr. YOUNG (first half-year) and Professor PERRY (second half-year)

Open as an elective to students in Columbia College who have taken Course B in the previous year.

An additional hour weekly in advanced Greek composition will be offered by Dr. ROGERS, and students who take this may count Course 3 as a four-hour course, or Course 5 as a three-hour course. Candidates for Honors in Classics are strongly urged to avail themselves of this opportunity.

5—First half-year: Selections from Herodotus, Books VI and VII. Second half-year: Selections from the minor Greek poets, chiefly elegiac and iambic. 2 hours. Professors WHEELER (first half-year) and PERRY (second half-year)

Open as an elective to sophomores whose record in Greek B has not fallen below B, and to juniors.

6—First half-year: Æschylus' *Agamemnon* and Sophocles' *Electra*. Second half-year: Selections from Thucydides, and Plutarch's *Life of Nicias*. For private reading in the course of the year, with occasional conferences with the instructor: Æschylus' *Choephoroi*. 3 hours. Professor PERRY (first half-year) and Dr. YOUNG (second half-year)

Open as an elective to juniors and seniors who have taken Course 3 or Course 5, or an equivalent. Open also to graduates, but not allowed to be counted towards the higher degrees.

7—Greek composition, advanced course. 2 hours. Professor WHEELER

Open as an elective to juniors and seniors. Open also to graduate students, but not allowed to be counted towards the higher degrees.

10—Lectures on Greek literature, with readings. Part II: Prose. 3 hours. Professor WHEELER

Open to seniors and graduate students. May be counted towards the higher degrees if special work is done in connection with it.

12—The Lyric and Bucolic Poets. 3 hours. Professor PERRY

Open to seniors and graduate students. May be counted towards the higher degrees.

15—Selections from the Greek Christian Fathers. 2 hours. Dr. YOUNG

Open as an elective to juniors and seniors. Open also to graduate students. May be counted towards the higher degrees if special work is taken in connection with it.

17—Introduction to the study of Greek archæology. 2 hours. Part I: Vases, painting. Professor WHEELER

Open to seniors and graduate students. May be counted towards the higher degrees.

19—Lectures on the manners and customs of the ancient Greeks. 2 hours. Dr. YOUNG

Open to seniors and graduate students. May be counted towards the higher degrees.

20—Readings from Pausanias, with illustrated lectures on the monuments of Olympia and Attica. 2 hours. Dr. YOUNG and Professor WHEELER

Open to seniors and graduate students. May be counted towards the higher degrees.

22—Greek dialectic inscriptions. 1½ hours. Professor PERRY

Open only to graduate students.

24—Methods of classical philology. Lectures. 2 hours, first half-year, or 1 hour throughout the year. Professor PERRY

Open to graduates only.

30—Modern Greek. 2 hours, second half-year only. Dr. ROGERS

Open to seniors and to graduate students. May not be counted for any degree.

Classical Seminar

Greek section: Interpretation of a Greek author (probably Bacchylides), with preparation and discussion of original papers. 2 hours weekly, second half-year only. Professor WHEELER

Open only to graduate students.

Equipment

The Library is unusually rich in early and rare editions of the classics; there is also an excellent selection of recent works on the Greek language and literature and on classical philology in general. Especially well represented are the departments of archæology, epigraphy, palæography. The Library contains all the important serial publications, issued abroad and at home, in the field of philology and archæology. In Greek epigraphy its collection is almost complete. This is supplemented in the department of Greek by an extensive system of "squeezes" from the marbles in many parts of Greece and the British Museum.

The department of Greek is well equipped with maps, plans, and models. It possesses a large collection (to which important additions have recently been made) of photographs and photographic reproductions of Greek monuments, localities, and sculpture, books of illustrations, lantern-slides, a few casts, and electrotypes, for the illustration of ancient monuments, art, and daily life; and these are continually drawn upon whenever opportunity offers in reading or lectures, that the literature and the art may complement each other. The Avery collection of the library, with its richly illustrated works on art and archæology, as well as architecture, offers an unusual opportunity for further

study of these subjects, and forms an invaluable subsidiary to the department. This is again reinforced by the facilities offered through the arrangement between the University and the Metropolitan Museum of Art, by which students of this University may have free access to all the Museum collections for study and comparison. The departments of Latin and Greek also possess in the "Classical Study" a special library of selected books, which are placed at the disposal of university students.

Courses in New Testament Greek at the Union Theological Seminary

These courses may count as *part* of the work required for the degrees of Master of Arts and Doctor of Philosophy at Columbia University; but students who intend to avail themselves of this privilege must come to an understanding with the Dean of the Faculty of Philosophy of Columbia University with regard to equivalence of courses and additional work required, at the time of registering themselves, or of renewing their registration, as candidates for a degree.

First Term :

New Testament grammar; the Synoptic Gospels. 4 hours weekly. Mr.

FRAME

Catholic or minor Pauline Epistles. 2 hours. Dr. VINCENT

Galatians, or equivalent. 2 hours. Mr. FRAME

Romans. 2 hours. Dr. VINCENT

Apologies of Justin Martyr. 2 hours. Dr. VINCENT

Second Term :

The Synoptic Gospels; grammatical and exegetical drill. 3 hours. Mr.

FRAME

The Johannine writings. 2 hours. Dr. VINCENT

Acts of the Apostles. 2 hours. Mr. FRAME

Hebrews, or equivalent. 2 hours. Dr. VINCENT

Philippians, or equivalent. 1 hour. Dr. VINCENT

James, or Pastoral Epistles. 1 hour. Mr. FRAME

Gynecology

GEORGE MONTGOMERY TUTTLE, M.D.	Professor
GEORGE W. JARMAN, M.D.	Chief of Clinic and Instructor
W. S. STONE, M.D.	Instructor
E. H. L. MCGINNIS, M.D.	Electro-Therapeutist
B. W. STIEFEL, M.D.	Clinical Assistant
CHARLES I. PROBEN, M.D.	Clinical Assistant
JOHN M. KENNEDY, M.D.	Clinical Assistant
E. P. MALLETT, M.D.	Clinical Assistant
J. V. D. YOUNG	Clinical Assistant
G. H. MALLETT, M.D.	Clinical Assistant
J. J. HIGGINS, M.D.	Clinical Assistant
FRANK OASTLER, M.D.	Clinical Assistant

Courses

1—The principles and practice of gynecology—Didactic lectures. 3 hours, from March 15 to the end of the academic year. Professor TUTTLE

Required, in the second and third years, of candidates for the degree of M.D.

2—Clinical instruction at the Vanderbilt Clinic. 1 hour. F. at 3 P.M. Professor TUTTLE

Required, in the third year, of candidates for the degree of M.D.

3—Practical instruction in diagnosis, treatment, and the use of instruments. 6 lessons for each student at the Vanderbilt Clinic. Dr. JARMAN and Dr. STONE

Required, in the third year, of candidates for the degree of M.D.

4—Hospital clinics in operative gynecology—Roosevelt Hospital, McLane Operating Theatre. 6 exercises for each student, Tu., Th., and Sat. at 2.30 P.M.

Required, in the third year, of candidates for the degree of M.D.

The McLane Operating Theatre of Roosevelt Hospital

This is upon the hospital grounds, immediately opposite the College of Physicians and Surgeons, and is one of the most thoroughly equipped buildings in this country for instruction in the surgery of gynecology.

The cases upon which operations are demonstrated are taken from the gynecological wards of Roosevelt Hospital, which are under the exclusive direction of the Professor of Gynecology, and the cases in which are all available for the instruction given by him.

History and Political Philosophy

WILLIAM MILLIGAN SLOANE, Ph.D., L.H.D.....	<i>Professor</i>
HERBERT LEVI OSGOOD, Ph.D.....	<i>Professor</i>
* WILLIAM ARCHIBALD DUNNING, Ph.D.....	<i>Professor</i>
JAMES HARVEY ROBINSON, Ph.D.....	<i>Professor</i>
HARRY ALONZO CUSHING, Ph.D.....	<i>Tutor</i>
WILLIAM ROBERT SHEPHERD, Ph.D.....	<i>Prize Lecturer</i>
CHARLES EDWARD MERRIAM, Jr., A.M.....	<i>Lecturer</i>

There are three groups of courses in this department: disciplinary, narrative, and research. Course **A** is required of all candidates for the A.B. degree; with it may be classed Courses **1, 2, 3, and 4**. Courses **5, 6, 7, 10, 11, 14, 30, and 35** are, preparatory to the independent investigation of historical subjects, and the rest are intended for the training of candidates for the higher degrees. These all may be supplemented and complemented by courses given in other departments which deal with subjects constituting an integral part of the domain of history: viz., history of European law, general history of diplomacy, history of American diplomacy, and the historical courses in Economics, Social Science, and Philosophy. The University likewise affords excellent opportunities

* Absent on leave.

for the study of archæology, political geography, and philology in their intimate connection with historical research.

Courses in History

A—Epochs of ancient, mediæval, and modern history. 3 hours. Dr. SHEPHERD

Required of all candidates for the A.B. degree.

1—Mediæval and modern political history to 1648. 2 hours. Dr. SHEPHERD

2—Continental European history, modern and contemporaneous, 1648–1899. 2 hours. Dr. CUSHING

3—English history to the Reform Bill (1832). 2 hours. Dr. CUSHING

4—History of the United States to the close of Reconstruction (1877). 3 hours. Dr. CUSHING

5—Transition epochs in European history. 2 hours. Professor SLOANE

6—The history of England during the eighteenth and nineteenth centuries. 2 hours. Professor OSGOOD

Given in 1899–1900.

7—Political and constitutional history of Rome. 2 hours, first half-year. Professor MUNROE SMITH

10—The sources of mediæval and modern European history—Methods of historical study—Bernheim's *Lehrbuch der Historischen Methode* will serve as a basis for the work. 2 hours, second half-year. Professors ROBINSON and OSGOOD

Given in 1899–1900.

11—Antecedents of modern European history—The Reformation—No handbook will be used, but the student will be required to pursue a definite course of reading. 2 hours. Professor ROBINSON

12—Mediæval institutions and culture—Luchaire's *Manuel des Institutions françaises* will be used as a handbook. 2 hours. Professor ROBINSON

Given in 1899–1900 and alternate years thereafter.

13—Opening of the Lutheran Reformation (1517–26)—A research course, open only to those who can read German and Latin fluently. 2 hours. Professor ROBINSON

14a—Continental history—France under Louis XVI—The antecedents and opening of the French Revolution—Students will be required to read De Tocqueville's *Ancien Régime*. 2 hours, first half-year. Professor ROBINSON

14b—Continental history—The age of the Revolution from 1791 to 1815. 2 hours, second half-year. Open only to those who have taken Course **14a**. Professor SLOANE

15—The work of Napoleon—This course is open to such selected individuals as give evidence of capacity for original research, and read French and German fluently. 2 hours, first half-year. Professor SLOANE

16—The constitutional history of England to 1689. 2 hours. Professor OSGOOD

17—The mediæval European city—This course of lectures will critically describe the many and varied theories about the legal origin of European municipal institutions. 2 hours, second half-year. Mr. ———.

18—Rise of the Holy Roman Empire. 2 hours, second half-year. Dr. SHEPHERD

Not given in 1898-99.

19—Early church history. 2 hours. Given at the Union Theological Seminary

20—Mediæval church history. 2 hours. Given at the Union Theological Seminary

21—Modern church history. 2 hours. Given at the Union Theological Seminary

22—Seminar in later mediæval and modern European history. 2 hours every other week. Professor ROBINSON

30—Transitions in American history—This course deals with those epochs of American history where its connection with that of Europe is closest. 2 hours. Professor SLOANE

Given in 1899-1900.

31—Political and constitutional history of the United States. 2 hours. Professor BURGESS

32—American colonial history during the seventeenth century. 2 hours. Professor OSGOOD

Open only to approved candidates for the degrees of A.M. and Ph.D., and to such special students as receive permission to attend.

Given in 1899-1900.

33—American colonial history during the eighteenth century—This course is open to the same class of students as is History **32**. 2 hours. Professor OSGOOD

34—European politics and the War of 1812—Research course given to selected individuals who show capacity for original research, and read French and German fluently. 2 hours, second half-year. Professor SLOANE

35—The United States during Civil War and Reconstruction. 2 hours, first half-year. Professor DUNNING

Given in 1899-1900.

36—American church history. 2 hours. Given at the Union Theological Seminary

37—Seminar in American colonial history. 1 hour. Professor OSGOOD

Courses in Political Philosophy

40—General history of political theories. 2 hours. Dr. MERRIAM

41—American political philosophy. 1 hour. Professor DUNNING

Given in 1900-1901.

42—Seminar in political philosophy. 1 hour. Professor DUNNING

Held in 1899-1900.

Equipment

The University Library is one of the two or three best similar institutions in the country. It contains over 260,000 volumes, among which are many of the great published collections for the study of ancient, mediæval, and modern history. The special library of history and political science numbers upwards of 100,000 volumes. Besides the great libraries of New York, Astor, Lenox, and Tilden foundations, those of the New York and Long Island Historical Societies and of the Bar Association are, under certain conditions, accessible to students. Fuller information as to courses and opportunities for historical work is given in the circular of the historical department, which may be obtained by applying to the Secretary of the University. Under the auspices of the Academy of Political Science, to which advanced students are eligible as members, opportunities are given for the discussion of questions of interest as presented in papers by specialists.

The department employs in its work the best French and German historical maps and one of the four largest relief globes ever made.

Laryngology

(Including Diseases of the Larynx, Pharynx, and Nasal Passages.)

GEORGE MOREWOOD LEFFERTS, M.D.....	<i>Clinical Professor</i>
WILLIAM K. SIMPSON, M.D.....	<i>Chief of Clinic and Instructor in Laryngology</i>
RICHARD FROTHINGHAM, M.D.....	<i>Instructor in Laryngology</i>
CHRISTOPHER J. COLLES, M.D.....	<i>Clinical Assistant</i>
JAMES P. McEVOY, M.D.....	<i>Clinical Assistant</i>
EDMUND W. BILL, M.D.....	<i>Clinical Assistant</i>
JONATHAN DWIGHT, Jr., M.D.....	<i>Clinical Assistant</i>
JOSEPH E. FULD, M.D.....	<i>Clinical Assistant</i>
ARTHUR P. COLL, M.D.....	<i>Clinical Assistant</i>
LEE M. HURD, M.D.....	<i>Clinical Assistant</i>
WOOLSEY HOPKINS, M.D.....	<i>Clinical Assistant</i>
JOHN J. MCCOY, M.D.....	<i>Clinical Assistant</i>
JOHN LESHURE, M.D.....	<i>Clinical Assistant</i>

Courses

Instruction in the department of Laryngology (including diseases of the larynx, pharynx, and nasal passages) is both didactic and clinical. It comprises :

1.—A systematic course of didactic lectures, which for convenience in teaching and economy of time is given to the fourth-year students collectively in the amphitheatre of the Vanderbilt Clinic.

These lectures treat of such general principles of pathology, diagnosis, and therapeutics as concern diseases of the throat and nasal passages ; each lecture being illustrated by wall plates in color, models, pathological specimens, apparatus, and instruments, and as the subject may also demand, either the presen-

tation of selected cases with a colored-chalk blackboard sketch of their pathological and diagnostic appearances, or by the personal demonstration of the patient with the aid of the laryngoscopic or rhinoscopic mirror.

During the course, practical illustrations of all the methods of local treatment are given and all minor surgical operations upon the throat and nasal passages performed in the presence of the class.

Both the subjects and the dates of these lectures, each of which is, as far as possible, complete in itself, are announced in printed form at the beginning of the session, and a copy furnished each student in attendance. 1 hour a week for twenty-eight weeks. M. at 2 P.M. Professor LEFFERTS

Required in the fourth year of candidates for the degree of M.D.

2—Practical clinical instruction in the Laryngological Hall of the Vanderbilt Clinic to sections of the class in the use of the laryngoscope, rhinoscope, and tongue spatula. The work of each course of twelve lessons is based upon the principles of concise preliminary explanation and personal demonstration, followed by practical work by the student: (1) In examinations of the normal mouth, pharynx, and anterior nasal passages—*i. e.*, oroscopy, median pharyngoscopy, and anterior rhinoscopy—until he has acquired the skilful use of reflected artificial light, by the aid of the concave head mirror, and then (2) in the laryngoscopic and posterior rhinoscopic examination of both normal and pathological cases, all under the direct and personal supervision of the instructors. The necessary instruments and apparatus are furnished by the department. Dr. WILLIAM K. SIMPSON

Required in the fourth year of candidates for the degree of M.D.

3—Individual clinical demonstrations, at which, during his course of "section" teaching, each student has demonstrated to him, by the instructor, a certain number of pathological cases, special attention being given to the questions of general diagnosis, differential and bacteriological diagnosis, and treatment. Dr. RICHARD FROTHINGHAM

Equipment

The department of Laryngology occupies the west end of the second floor of the Vanderbilt Clinic. It possesses:

Two large clinic rooms for the separate registration, examination, and treatment of male and female patients. Each of these rooms contains two compartments or alcoves, fitted with Mackenzie light condensers, medicine and instrument cabinets, cuspidors with running water, a compressed-air apparatus for medicated sprays (the steam air-pump and large storage reservoir for compressed air being located in the cellar of the Clinic building), electromotor and galvanocautery, rheostat and instruments supplied by a special dynamo. One of these rooms (No. 7) is fitted in part with glass cases and cabinets of drawers, to accommodate the "museum of teaching apparatus," charts, models, pathological specimens, and a collection of operative instruments.

An operating room for cases requiring anæsthesia, which also serves as a private examination cabinet for patients, and as an office and demonstration room for the professor.

A large hall, fitted with nineteen separate stalls, each with lamp, "laryngoscope phantom," mirrors, and other instruments and conveniences for the instruction of classes of students in the practical use of the laryngoscope and rhinoscope.

A "demonstration room" for pathological cases to limited numbers of students.

A large, light hallway, with ample and convenient seating capacity; in communication with all of the above rooms; used as the reception and waiting room for patients.

Access to the amphitheatre of the Clinic; fitted with electric light for examinative purposes. Rheostats for small incandescent lamps and the galvano-cautery and electromotor. A dark cabinet for laryngoscopic and rhinoscopic demonstrations, and ample hanging facilities for a large collection of colored wall charts of pathology, etc. The didactic lectures are given in this amphitheatre.

The department is further equipped with a complete collection of the most approved modern instruments and appliances, by the best makers, for the diagnosis and treatment of the diseases of the throat and nose, and for the giving of instruction therein.

Among other things may be mentioned: a complete collection of the modern electric illuminating apparatus for the examination of patients; the electric laryngoscope; apparatus for the transillumination of the accessory cavities of the face; dilators, candulæ, and other instruments used in the treatment of laryngeal stenosis; operative instruments by Pfau of Berlin, arranged in cases and catalogued; laryngoscope "phantoms," by Bock of Leipsic, for exercising the students in the use of the various instruments preliminary to the examination of the living subject; one hundred anatomical models of the healthy and diseased larynx by Steiger of Leipsic and Tobold of Berlin; models of the normal larynx by Bock of Leipsic and by Anzoux of Paris; physiological models to illustrate the normal movements and the various paralyses of the vocal cords; a diagrammatic model to illustrate the mechanical interference of laryngeal neoplasms with the act of phonation; photographs of the living larynx, in health and disease; four hundred wall plates in color, by Wright of New York, of the pathological conditions of larynx, pharynx, naso-pharynx, and nasal passages. These are of large size (42 x 36) to illustrate the clinical lectures. A collection of large drawings, illustrating the anatomy of the accessory sinuses of the nose. Also illustrated by a series of sections of the skull, made by Ward of Rochester, and by a series of models of frozen sections of the human head, prepared by Odo Betz and by Elkins. Fränkel's photogravures of the same subjects. Drawings and instruments to illustrate the operation of intubation. Reproductions of all the earlier tubes for laryngeal catheterization and intubation. This latter collection is historically interesting as illustrating the evolution of the intubation tube. A special manikin, upon which the process of intubation may be practically demonstrated to a large number of students at one time. Wet preparations of the larynges of children, demonstrating *in situ* the proper-sized intubation tube, and its exact position in the larynx at different ages (1-15 years); and a series of models, by Elkins, of

laryngeal diphtheria ; a collection of skulls, demonstrating the various lesions of the nasal septum, and abnormalities of the nasal chambers.

The pathological and anatomical museum of the department contains at present one hundred and fifty carefully prepared and mounted wet preparations of the larynx and its diseases. This collection is specially rich in the rare specimens, such as benign neoplasms of the larynx, intrinsic and extrinsic, laryngeal cancer, and others.

Latin

HARRY THURSTON PECK, Ph.D., L.H.D.....	<i>Professor</i>
JAMES C. EGBERT, Jr., Ph.D.....	<i>Adjunct Professor</i>
NELSON G. MCCREA, Ph.D.....	<i>Instructor</i>
HENRY J. BURCHELL, Jr., A.M.....	<i>Assistant</i>
CHARLES KNAPP, Ph.D.....	<i>Assistant</i>
GEORGE N. OLCOTT, A.B.....	<i>Lecturer</i>

Courses **A** and **B** are open to freshmen in the College ; **1** and **2** to sophomores, unless they elect Chemistry as a substitute ; **3**, **4**, and **10** are open to juniors, **3-6**, **8**, **9**, and **11** to seniors and university students ; **7**, **9**, **10**, **11**, and **12** to university students ; **7** to seniors, by special permission ; and **5** to specially qualified juniors.

Courses

A—Pliny's letters—Horace, odes and epodes—Latin prose composition. Reading at sight. 3 hours. Mr. BURCHELL

B—Selected readings in prose and verse. 3 hours. Dr. MCCREA

1—Livy, Bk. XXI—Prose composition—Horace, satires. 3 hours. Professor EGBERT and Mr. OLCOTT

2—Epistles of Horace—Roman literature. 2 hours. Dr. MCCREA

3—Juvenal—Martial. 3 hours. Professor EGBERT and Dr. MCCREA

4—Plautus and Terence—Lectures on Roman comedy. 2 hours. Dr. MCCREA.

5—Introduction to Latin inscriptions. 2 hours. Professor EGBERT

6—Rapid reading (Horace and Ovid). 2 hours. Professors PECK and EGBERT

7—The Annals of Tacitus. 2 hours. Professor EGBERT

8—Latin manuscripts. 2 hours. Professor EGBERT

9—Lectures on Greek and Roman prose fiction. 2 hours. Professor PECK

10—The private life of the Romans. 2 hours. Dr. MCCREA

11—Latin bibliography. 2 hours, first half-year. Professor PECK

12—Classical seminar (Latin section). 2 hours, first half-year. Professor PECK

LAW

The courses offered in Law are here indicated. For full information as to the course leading to the degree of Bachelor of Laws consult the statement concerning the School of Law.

Municipal or Private Law

WILLIAM A. KEENER, LL.D.....	<i>Professor</i>
FRANCIS M. BURDICK, LL.D.....	<i>Professor</i>
GEORGE W. KIRCHWEY, A.B.....	<i>Professor</i>
GEORGE F. CANFIELD, A.M., LL.B.....	<i>Professor</i>
HENRY W. HARDON, A.M., LL.B.....	<i>Professor</i>
HERBERT NOBLE, A.M., LL.B.	<i>Lecturer</i>
CHARLES T. TERRY, A.B., LL.B.....	<i>Lecturer</i>
STEWART CHAPLIN, A.B., LL.B.....	<i>Lecturer</i>

Courses 1 to 6, inclusive, constitute the work of the first year in the Law School and are open to seniors in the College. Courses 7 to 15, inclusive, are open to students who have taken the work of the first year in Law. Courses 16 to 25, inclusive, are open to students who have taken the work of the first and second years in Law.

Courses

- 1—Elements of jurisprudence and equity. 2 hours. Professor KEENER
- 2—Contracts. 4 hours. Mr. TERRY
- 3—Real and personal property. 2 hours. Professor KIRCHWEY
- 4—Torts. 2 hours. Professor BURDICK
- 5—Common-law pleading and practice. 2 hours, second half-year. Professor HARDON
- 6—Domestic relations and law of persons. 2 hours, first half-year. Mr. NOBLE
- 7—Quasi-contracts. 2 hours. Professor KIRCHWEY
- 8—Equity. 2 hours. Professor KEENER
- 9—Real and personal property. 2 hours. Professor KIRCHWEY
- 10—Agency. 2 hours. Professor CANFIELD
- 11—Bailments and carriers. 2 hours. Mr. NOBLE
- 12—Sales of personal property. 2 hours. Professor BURDICK
- 13—Code practice. 2 hours, second half-year. Professor HARDON
- 14—Equity pleading and practice. 2 hours, first half-year. Professor HARDON
- 15—Negotiable paper. 2 hours. Professor BURDICK
- 16—Code pleading and practice. 2 hours. Professor HARDON
- 17—Corporations. 2 hours. Professor KEENER
- 18—Equity. 2 hours. Professor KEENER
- 19—Evidence. 2 hours. Professor CANFIELD
- 20—Insurance. 2 hours, second half-year. Mr. NOBLE
- 21—Partnership. 2 hours. Professor BURDICK
- 22—Real and personal property. 2 hours. Professor KIRCHWEY
- 23—Suretyship and mortgage. 2 hours. Professors BURDICK and KIRCHWEY
- 24—Wills and administration. 2 hours. Professor HARDON
- 25—Doctrines peculiar to New York law. 1 hour. Professor CANFIELD

Public Law and Jurisprudence

JOHN WILLIAM BURGESS, Ph.D., LL.D.....	<i>Professor</i>
MUNROE SMITH, A.M., J.U.D.....	<i>Professor</i>
FRANK JOHNSON GOODNOW, A.M., LL.D.....	<i>Professor</i>
* JOHN BASSETT MOORE, A.B.....	<i>Professor</i>
EDMOND KELLY, A.M.....	<i>Lecturer</i>
FREDERIC BANCROFT, Ph.D.....	<i>Lecturer</i>

The courses in this department fall into two divisions: public law and jurisprudence. The purpose of the courses in public law is to give a complete general view of international, constitutional, administrative, and criminal law. They serve primarily to supplement the courses in the departments of History and Economics, and to give with them a complete system of political science. In the second place, they supplement the courses offered by the department of Private Law, constituting with these a well-rounded legal curriculum. The courses in international, constitutional, and administrative law are also recommended to journalists, students of philosophy and theology, and in general to all who desire to understand the organization and working of governmental systems. The courses in criminal law and in international private law (conflicts of private law) are more professional in their character, and are chiefly intended for law students.

The courses in Roman law and comparative jurisprudence, while constituting an integral portion of a complete legal education, will be found useful to all those who desire a general comprehension of the principles of private law rather than a professional training in its details. The introductory course upon the Roman law (21) and that upon European legal history (23) are especially recommended to students of history, economics, and philosophy.

Courses in Public Law

A—Constitutional Law

1—Comparative constitutional law of the principal European states and the United States—Lectures. 2 hours. Professor BURGESS

5—Seminar in the constitutional law of the United States—Investigation and discussion. 2 hours. Professor BURGESS

The courses in the constitutional history of Europe, England, and the United States (*cf.* courses in history) are regarded as a necessary introduction to the above courses in constitutional law.

B—International Law

6—History of diplomacy — Lectures. 2 hours, first half-year. Professor MOORE *

* Owing to Professor Moore's absence on leave as Secretary and Counsel to the American Peace Commissioners in Paris who are framing a treaty of peace with Spain, temporary arrangements have been made for the conduct of his courses during the current year:

Courses 6 and 7 are given by FREDERIC BANCROFT, Ph.D.;

Courses 8 and 10 are given by EDMOND KELLY, A.M.;

Course 11 is given by STEWART CHAPLIN, A.B., LL.B., under the auspices of the Faculty of Law.

7—History of American diplomacy—Lectures. 2 hours, second half-year. Professor MOORE *

8—International law—Lectures. 2 hours. Professor MOORE *

10—Seminar in international law. Professor MOORE *

C—Criminal Law

11—Criminal law, including the conflict of penal laws, and extradition—Lectures. 2 hours. Professor MOORE *

D—Administrative Law

16—Comparative administrative law—Lectures. 2 hours. Professor GOODNOW

17—Municipal government—Lectures. 2 hours, second half-year. Mr. KELLY

18—Law of taxation—Lectures. 1 hour. Professor GOODNOW

20—Seminar in administrative law. Professor GOODNOW

Courses in Roman Law and Comparative Jurisprudence

21—Roman law I—Sohm's *Institutes of Roman Law*, supplemented by lectures. 2 hours, first half-year. Professor MUNROE SMITH

22—Roman law II—Discussion of selected cases from the *Corpus Juris Civilis*, principally in contracts. 2 hours, second half-year. Professor MUNROE SMITH

23—History of European law (early German law ; Frankish law ; feudalism ; the canon law ; the reception of Roman law in mediæval Europe ; the reaction against Roman law, canon and civil, and the movement towards national codification)—Lectures. 2 hours. Professor MUNROE SMITH

Given in 1899-1900 and alternate years thereafter.

24—Comparative jurisprudence—Lectures and discussion. 2 hours. Professor MUNROE SMITH

Given in 1898-99 and alternate years thereafter,

25—International private law (conflicts of private law)—Lectures and discussion of cases. 1 hour. Professor MUNROE SMITH

29, 30—Seminars in legal history and comparative legislation. Professor MUNROE SMITH

Literature

(See page 97)

Materia Medica and Therapeutics

GEORGE L. PEABODY, M.D. Professor

Courses

Instruction in this department is both didactic and clinical.

1—The didactic course embraces general therapeutic considerations ; modes of administering drugs ; the individual drugs used in treating disease, their

* See note on page 117.

physiological effects and therapeutic uses, and the toxicological effects of such of them as are poisons ; remedial measures other than the use of drugs, including electricity, dietetics, the use of water (including bathing and the administration of mineral waters) ; physical exercise, and the like.

The department has a full collection of all the drugs lectured upon, as well as of their important preparations. After each lecture every student has an opportunity of examining specimens of all the drugs and preparations that formed the subject of the lecture. 3 hours. Professor PEABODY

Required, in the second and third years, of candidates for the degree of M.D.

2—The clinical instruction in therapeutics is given in the New York and Roosevelt Hospitals.

A large number of patients are presented to the class, and abundant opportunity is afforded of observing the modifications in the natural course of diseases which are produced by therapeutic procedures, including not only the action of drugs, but also the effects of such remedial measures as cold baths, wet packs, electricity, and the like.

Frequent opportunity is also given for the personal examination of patients by members of the class in attendance ; and the entire course of protracted diseases, with their variations in symptoms and physical signs as well as in their treatment, can thus be observed.

Facilities are also extended for witnessing the performance of autopsies in fatal cases as frequently as the hospital regulations permit.

Once a week for three months at the New York Hospital, once a week for two months at the Roosevelt Hospital. Professor PEABODY

Recommended, in the third and fourth years, to candidates for the degree of M.D.

Mathematics

J. HOWARD VAN AMRINGE, Ph.D., L.H.D., LL.D.....	<i>Professor</i>
THOMAS SCOTT FISKE, Ph.D.....	<i>Professor</i>
FRANK NELSON COLE, Ph.D.....	<i>Professor</i>
JAMES MACLAY, C.E.....	<i>Instructor</i>
JONATHAN BRACE CHITTENDEN, Ph.D.....	<i>Tutor</i>
CASSIUS JACKSON KEYSER, A.M.....	<i>Tutor</i>
WALTER WHEELER COOK, A.B.....	<i>Assistant</i>
HENRY BEDINGER MITCHELL, E.E.....	<i>Assistant</i>

Courses

A—Geometry, volumetric and spherical (Davies' *Legendre*, Books 6-9). 3 hours, first half-year ; algebra from quadratics (Wells' *College Algebra*). 3 hours, second half-year. Mr. MACLAY, Dr. CHITTENDEN, and Mr. KEYSER

Prescribed for freshmen in the College who did not offer advanced mathematics at the entrance examination.

1—Trigonometry, plane, analytical, and spherical, and mensuration (Davies' *Legendre*). 3 hours, first half-year. Professor FISKE

Open to students in the College who have taken Course A or who offered advanced mathematics at the entrance examination.

2—Analytical geometry, first part—Straight line, circle, parabola, and transformation of co-ordinates (Wentworth's *Analytical Geometry*). 3 hours, second half-year. Professor FISKE

Open to students in the College who have taken Course 1.

10—Trigonometry (as in Course 1) and algebra (Wells' *College Algebra*) from series. 5 hours, first half-year. Mr. MACLAY, Dr. CHITTENDEN, and Mr. KEYSER

Required of all first-year students in the School of Mines, School of Chemistry, and School of Engineering.

11—Analytical geometry (Wentworth's). 5 hours, second half-year. Mr. MACLAY, Dr. CHITTENDEN, and Mr. KEYSER

Required of all first-year students in the School of Mines, School of Chemistry, and School of Engineering.

3—Elementary projective geometry. 3 hours. Mr. MACLAY

Open to students in the College who take, or have taken, Courses 1 and 2.

4—Analytical geometry, second part—Continuation of Course 2. 3 hours, first half-year. Professor VAN AMRINGE

Open to students in the College who have taken Courses 1 and 2.

5—Theory of equations—First eleven chapters of Burnside and Panton's *Theory of Equations*. 3 hours, second half-year. Professor VAN AMRINGE

Open to students in the College who have taken Course 4.

6—Calculus—Osborne's *Differential and Integral Calculus*. 3 hours. Professor VAN AMRINGE

Open to students in the College who take, or have taken, Course 4. Required of second-year students in the School of Mines, School of Chemistry, and School of Engineering.

7—Advanced analytical geometry—C. Smith's *Solid Geometry* and Scott's *Introduction to Modern Methods in Analytical Geometry*. 3 hours. Dr. CHITTENDEN

Open to students in the College who have taken Courses 4 and 5, and who take, or have taken, Course 6.

21—Advanced calculus. 3 hours. Professor FISKE

Open to specially qualified seniors in the College who have taken Course 6. For A.M. and Ph.D.

22—Differential equations. 3 hours. Mr. MACLAY

Open to specially qualified seniors in the College who have taken Course 6. For A.M. and Ph.D.

23—Theory of functions of a complex variable. 3 hours. Professor FISKE

For A.M. and Ph.D.

Not given in 1898-99.

24—Riemann's theory of functions, including elliptic functions. 3 hours. Professor COLE

For A.M. and Ph.D.

25—Theory of invariants. 3 hours. Dr. CHITTENDEN

For A.M. and Ph.D.

Not given in 1898-99.

26—Higher plane curves. 3 hours. Mr. KEYSER

For A.M. and Ph.D.

- 27—Analytical theory of curves of double curvature and curved surfaces. 3 hours. Mr. MACLAY
For A.M. and Ph.D.
Not given in 1898-99.
- 28—Theory of Abelian functions. 3 hours. Professor FISKE
For A.M. and Ph.D.
- 29—Theory of substitutions. 3 hours. Professor COLE
For A.M. and Ph.D.
Not given in 1898-99.
- 30—Theory of linear transformations and the higher theory of equations. 3 hours. Professor COLE
For A.M. and Ph.D.
- 31—Functions defined by linear differential equations. 3 hours. Professor FISKE
For A.M. and Ph.D.
Not given in 1898-99.

Equipment

In the equipment of the department of Mathematics is a large number of models, charts, and instruments. An elaborate set of models illustrates the metric system of weights and measures. A set of about fifty models of elementary solid and spherical geometry is intended to exemplify the demonstrations contained in Davies' *Legendre*. These are made of cherry wood with markings in inlaid ebony, and are of unusually large size. There are several similar models representing the different plane sections of the cone. A series of wooden models, constructed by Schroeder of Darmstadt, illustrates elementary solid geometry, and contains, in addition, examples of all the different forms of the surfaces of the second order. There is a series of models of descriptive geometry, also constructed by Schroeder. The horizontal and vertical projections are traced upon boards solidly joined together at right angles and of convenient size to allow in general the representation of three different models, or of three different views of the same model. The form and construction suggest a division of these models into two classes: (1) the representation in metal of lines and surfaces, adjusted upon axes, the projections of several of their positions being given; (2) the representation of solid bodies in hard wood, including the exhibition of their plane sections in various directions and the intersections of different surfaces and solids.

A collection of models, which was presented to the department by President Low, having been purchased by him from the German University Exhibit at the Chicago Exposition in 1893, illustrates analysis situs, theory of functions of a complex variable, surfaces of higher order, their singularities and curvature, and line-geometry.

A series of charts illustrates the theory of plane algebraic curves, especially those of the fourth order, the resolution of higher plane singularities into equivalent elementary singularities, the expression of functions by means of infinite series and infinite products, and conformal representation by means of algebraic and elliptic functions.

Among the instruments of the department are an Amsler's planimeter, many

instruments for executing geometrical constructions upon the blackboard and paper, a collection of curves of different sizes in wood and hard rubber, and several pieces of apparatus for describing the conic sections upon the blackboard in accordance with the well-known kinematic methods.

The collection of mathematical works in the Library of the University is especially rich in treatises and in sets of collected works of mathematicians. All the mathematical journals of importance are regularly received, and the Library possesses complete sets of most of them.

Mechanical Engineering

(See page 87)

Mechanics

ROBERT SIMPSON WOODWARD, C.E., Ph.D. *Professor*
MICHAEL IDVORSKY PUPIN, Ph.D. *Adjunct Professor*
JOSEPH CLEMENT PFISTER, A.M. *Tutor*

Courses 1 and 3-9 may be pursued as minors for the degrees of A.M. and Ph.D. by candidates who have not taken such courses in undergraduate work; 3 hours a week for one half-year constitutes a minor for the degree of A.M., and 3 hours a week for two half-years a minor for the degree of Ph.D.

Time equivalent to three hours a week for four half-years devoted to Courses 10-18 is required as a major for the degree of Ph.D., and 3 hours a week for two half-years as a major for the degree of A.M. For a minor for the degree of Ph.D. a time equivalent to 2 hours a week for two half-years is required.

Courses

1—Analytical mechanics. As a text for this subject, Rankine's *Applied Mechanics* is used, attention being confined chiefly, however, to Part I, Principles of Statics (including hydrostatics); Part III, Principles of Kinematics; and Part V, Principles of Dynamics (including hydrodynamics). The text is supplemented by lectures on special topics, by written solutions and discussions of typical problems, and by demonstrations with the aid of apparatus. Particular attention is given to the doctrine of units and dimensions of units, and to problems affording actual applications of principles. 3 hours, first and second half-year.
Professor WOODWARD

Required of students in Civil, Mining, Mechanical, and Electrical Engineering; and it is recommended to all students who may desire to pursue the higher applications of mechanics in dynamical astronomy, electricity, magnetism, thermodynamics, elasticity, and physical geodesy.

2—Elementary mechanics. Loney's *Elements of Statics and Dynamics* is used as a text. This work is supplemented by demonstrations with apparatus, by lectures on the theory of dimensions and units, and by lectures, chiefly historical, on the higher applications and results of the science. 2 hours. Mr. PFISTER

Offered especially as an elective to students of the junior and the senior years in the College. It is designed to afford as good a knowledge of the science as can be had without the calculus. It assumes that the student has passed in Course 1 of the department of Mathematics, or its equivalent.

3—Theoretical mechanics. This requires familiarity with the elements of the differential and integral calculus. 2 hours. Mr. PFISTER

Designed to be supplementary to Course 2, and is offered as an elective to those desiring a knowledge of the general principles of the science rather than the special principles essential to engineering.

4—Thermodynamics, with special reference to its bearing on the theory of heat engines. 3 hours, second half-year. Professor PUPIN

Required of all students in Engineering.

5—Elementary thermodynamics and hydromechanics. Thermodynamics, 2 hours, first half-year; hydromechanics, 2 hours, second half-year. Mr. PFISTER

Offered as an elective to students of the fourth year in the College, and to graduates. Its pre-requisite is Course 2, or an equivalent.

6—Theory of dynamo and motor (introductory), covering elements of the theory of electric, magnetic, and electro-dynamic potential, theory of electro-magnetic and electro-dynamic induction, and its application to the theory of an ideal dynamo. 3 hours, first half-year. Professor PUPIN and Mr. FREEDMAN

Required of students in Electrical Engineering.

7—Theory of direct-current dynamo and motor, covering Hopkinson's theory of dynamo and motor designing, and Froelich's method of dynamo and motor testing. 3 hours, second half-year. Professor PUPIN and Mr. FREEDMAN

Required of students in Electrical Engineering.

8—Theory of alternators and transformers. 3 hours, first half-year. Professor PUPIN

Required of students in Electrical Engineering.

9—Theory of variable currents, particularly the theory of polyphase and of high frequency and high potential currents. 2 hours, second half-year. Professor PUPIN

Required of students in Electrical Engineering.

10—Advanced theoretical mechanics—General principles of kinematics, statics, and kinetics; methods of Lagrange, Hamilton, and Jacobi; applications of the doctrine of energy to the interpretation of mechanical phenomena. Lectures, 2 hours, first and second half-year. Professor WOODWARD

11—Theory of the potential function—General exposition of theory; derivation of equations of Laplace and Poisson, and theorems of Gauss, Green, and Stokes: with applications to problems in gravitation, hydromechanics, static electricity, and terrestrial magnetism. Lectures, 2 hours, first and second half-year. Professor WOODWARD

12—Geodynamics—Amount and distribution of earth's mass; phenomena of precession, nutation, and oceanic tides; variation of density, gravity, and pressure within the earth; thermal properties, and secular contraction; mechanics of crumpling and crust movements. Lectures, 2 hours, first and second half-year. Professor WOODWARD

13—Mathematical theory of elasticity—Analysis of stresses and strains and expression of strains in terms of stresses; discussion of potential energy of strained media and the constants essential to define them; theory of wave mo-

tion in elastic media, with applications to sound and light. Lectures, 2 hours, first and second half-year. Professor WOODWARD

14—Maxwell's theory of electricity and magnetism. Lectures, 2 hours, first and second half-year. Professor PUPIN

14a—Theory of Bessel's functions and spherical harmonics. Lectures, 1 hour. Professor PUPIN

15—Electro-magnetic theory of light. Lectures, 3 hours, first half-year. Professor PUPIN

16—Advanced thermodynamics, including its applications to thermo-electricity and thermo-magnetism, physical chemistry, and caloric engines. Lectures, 2 hours. Professor PUPIN

17—Theory of oscillations. 2 hours. Professor PUPIN

Equipment

The department is supplied with various machines and models of machines for illustrating the so-called mechanical powers, with balances, dynamometers, air-pump, hydraulic pumps, and other apparatus to which reference is made in the course of theoretical studies. The department has a well-equipped electrical research laboratory under the direction of Professor Pupin. A limited number of advanced students can be accommodated in it. In addition to its own appliances, the department has access to the apparatus of the allied departments, especially that of the department of Electrical Engineering, thus affording the facilities of an extensive equipment to students in advanced work. A complete set of apparatus for performing Hertz's classical experiments bearing upon the Faraday-Maxwell electro-magnetic theory is in process of construction and is expected to be finished by the end of the year 1898.

Metallurgy

THOMAS EGLESTON, E.M., Ph.D., LL.D.....	<i>Emeritus Professor of Mineralogy and Metallurgy</i>
HENRY MARION HOWE, A.M., B.S.....	<i>Professor</i>
JOSEPH STRUTHERS, Ph.D.....	<i>Tutor</i>
RICHARD S. McCAFFERY, E.M.....	<i>Assistant</i>
PARKER C. McILHINEY, Ph.D.....	<i>Assistant</i>

A—Undergraduate Courses

1—General metallurgy—As an introduction to Courses 2, 3, 4, 5, and 6, history, definition of terms, calorimetry, refractory materials, furnaces, fuels (natural and artificial), chimneys, blast engines, regulators, pyrometry, furnace-gas analysis. 3 hours lectures, first half-year, during October, November, and December. Dr. STRUTHERS

Pre-requisite: Chemistry 1 and Physics 1, or equivalent. Required of third-year students in the Schools of Mines and Chemistry. Students in the course of Metallurgy have an additional hour a week. Together with Courses 2, 3, and 6, counts as a minor for the degree of A.M.

2—The metallurgy of steel and iron—The properties of steel, cast iron, and wrought iron, as influenced by composition and by thermal and mechanical treatment, together with a brief account of the chief processes by which they are made. 3 hours a week during January. Professor HOWE

Pre-requisite: Metallurgy 1. Required of third-year students in the Schools of Mines and Chemistry. Together with Courses 1, 3, and 6, counts as a minor for the degree of A.M.

3—The metallurgy of iron and steel—Ores: Classification and constitution of iron and steel; the blast furnace; composition and properties of cast iron; composition and properties of wrought iron and steel, and the influence of thermal and mechanical treatment; puddling; the Bessemer, open-hearth, and crucible processes, forging and rolling; casting cast iron and steel; and the minor processes of steel and iron making. 3 hours lectures, second half-year. Professor HOWE

Pre-requisite: Chemistry 1 and Physics 1, or equivalent. Required of third-year students in the courses of Metallurgy and Mechanical Engineering, and of fourth-year students in the courses of Civil Engineering and Electrical Engineering. Students in the course of Metallurgy have an additional hour a week. Together with Courses 1, 2, and 6, counts as a minor for the degree of A.M.

4—Metallurgy of copper—The properties of copper and of its alloys; the constitution of the alloys; the reverberatory and cupola smelting processes for oxide and for sulphide ores; the Manhes or Bessemerizing process; minor smelting processes; wet and electrolytic processes. 3 hours lectures, first half of year, during October, November, and December. Professor HOWE

Pre-requisite: Metallurgy 1. Required of fourth-year students in the Schools of Mines and Chemistry. Students in the course of Metallurgy have an additional hour a week. Together with Courses 5 and 6, counts as a minor for the degree of A.M.

5—Metallurgy of the other non-ferrous metals—Lead; silver; gold; zinc; mercury; tin; aluminum; nickel; cobalt; arsenic; antimony. Properties; effect of impurities; ores; methods of extraction, separation, and refining. 3 hours lectures during January, first half-year, and through second half-year. Dr. STRUTHERS

Pre-requisite: Metallurgy 1. Required of fourth-year students in the Schools of Mines and Chemistry. Students in the course of Metallurgy have an additional hour a week. Together with Courses 4 and 6, counts as a minor for the degree of A.M.

6—Practical laboratory work—Heat treatment of metals and alloys; study of refractory materials; heating value of fuels; measurement of high temperature; roasting of ores, and work of like character. 3 afternoons a week, second half of third year. Professor HOWE and Dr. STRUTHERS

Pre-requisite: Metallurgy 1; and pre-requisite or parallel: Metallurgy 3, 4, and 5. Required of third-year students in the course of Metallurgy. Together with Courses 4 and 5, counts as a minor for the degree of A.M.

B—Graduate Courses

Special courses, consisting of personal instruction and original experimental investigation, will be arranged for advanced students according to their individual needs and ability. Some of these investigations will be made at metallurgical works into processes in actual use there, others in the metallurgical and analytical laboratories of the department.

The amount of time required for these courses varies, being governed by the rule that a course or courses should occupy 18 hours a week (preparation included) if taken as a major subject, and 9 hours a week if taken as a minor subject, for the degree of A.M. or Ph.D.

7—Advanced course in calorimetry—Determination of practical and theoretical values of various combustibles.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

8—Advanced course in pyrometry—Determination of the temperatures of metallurgical and other high-temperature operations, *e. g.*, of the Bessemer converter for steel and for copper, the open-hearth steel furnace, the iron blast furnace, the copper and lead smelting cupola furnace, steam-boiler fires, and the like.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

9—Microscopic study of iron, steel, and other metals—Preparation and microscopic examination of specimens.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

10—The heat treatment of steel and other metals, with determination of the resultant effects on the physical properties.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

11—The formation-points, melting-points, and specific heat of slags, their density and viscosity when molten, and the phenomena of crusting.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

12—The influence of strain upon the properties of metals.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

13—The chemistry of roasting processes, including the expulsion of arsenic and antimony.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

14—The chemistry of the iron blast furnace.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

15—The chemistry of basic dephosphorizing processes.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

16—Search for new and useful alloys.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

17—Fire-brick and other refractory materials, their resistance to heat and to corrosion.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

18—Electrolytic refining and depositing processes.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

19—Wet processes for extracting gold, silver, and copper.

Pre-requisite: Metallurgy 1, 3, 4, and 5, or equivalent.

C—Summer School

20—Summer school in metallurgy—Two weeks are spent at metallurgical works in studying the operations there carried out. The students are given individual and class instruction and are required to make complete descriptions

of the various processes, including sketches of furnaces and apparatus. This course is required of students in the School of Mines in the vacation between the third and fourth years, and it may be taken in addition in the vacation between the second and third years by those who wish it. Professor HOWE and Dr. STRUTHERS

At least two weeks in the summer are devoted to the study of metallurgy in actual practice. The class studies at various establishments the processes there used, the arrangement of the works, the construction of the furnaces, and the like. It is the aim of the instruction to teach the student to observe carefully all matters of importance relating to the work detailed. In addition to developing his powers of observation, he is taught to reason for himself, so that he will thoroughly understand the rationale of a process, and be able, not only to give a clear and concise description, but also to explain the differences in procedure which arise under varying conditions.

In 1896 the summer school was held at Butte, Montana, and studied the smelting of copper and silver ores in that district.

In July, 1897, the summer school studied at Chicago and Pittsburgh the manufacture of iron and steel, at the various works of the Illinois Steel Company and the Carnegie Steel Company, besides several smaller works.

In September, 1898, the summer school was held at Pittsburgh, McKeesport, Latrobe, Johnstown, Steelton, Phoenixville, and Pencoed, Penn. The subject selected for study was the manufacture of cast iron, wrought iron, and steel, and their conversion into finished products.

METALLURGICAL EXCURSIONS—During the term the students are taken to the metallurgical establishments in the vicinity of the city, embracing iron blast furnaces, and Bessemer, open-hearth, and puddling works, the smelting of lead and copper ores, the Bessemerizing of copper matte, the refining of copper by furnace and electrolytic methods, the desilverizing of base bullion by zinc, and the parting and refining of gold and silver by both electrolytic and acid methods.

Equipment

LECTURE DIAGRAMS—There is an important collection of large lecture diagrams, prepared with great care, and many of them colored, illustrating the various metallurgical furnaces and appliances, and also showing graphically the sequence of operations in many metallurgical processes, and illustrating these processes in a realistic way.

In addition the lectures are illustrated, not only by the models referred to below, but more especially by actual demonstrations, as for instance in the heat-treatment of metals, in the wet-metallurgical processes, in the rolling of metals, for which purpose a small roll-train is used, and the like.

MODELS AND DRAWINGS—There is an excellent collection of models of metallurgical apparatus, furnaces, Bessemer converters, roll-trains, and the like, and a very large number of detailed drawings, most of them copied from the working drawings of establishments in actual operation.

METALLURGICAL COLLECTION—There is a collection of about 3000 specimens of ores, slags, metals, fuels, refractory materials, and the intermediate and final products of the more important metallurgical processes.

ANALYTICAL LABORATORY—The department has an analytical laboratory open to the students in metallurgy.

METALLURGICAL LABORATORY—In order to enable the student to carry out metallurgical processes on an illustrative scale, this laboratory will be equipped

for the current year with furnaces for roasting, for heating, and for melting in large and small crucibles, and apparatus for electrolytic and hydro-metallurgical processes.

For high-temperature investigations the laboratory already has several special furnaces, and it will be equipped for the current year with a large furnace heated by electricity.

This laboratory has also a collection of the various modern calorimeters, of calorimetric, optical, photometric, and thermo-electric pyrometers ; apparatus for analyzing furnace gases, and equipment for preparing sections of metals ; lathes, grinders, polishers, and microscopes especially adapted for examination of opaque objects ; a collection of apparatus for obtaining pressure directly and by the application of heat ; a sclerometer, a machine constructed by Dr. Egleston for the study of the physical properties of metals, and many other valuable instruments.

Mineralogy

THOMAS EGLESTON, E.M., Ph.D., LL.D.....	<i>Emeritus Professor of Mineralogy and Metallurgy</i>
ALFRED J. MOSES, E.M., Ph.D.....	<i>Professor</i>
LEA MCI. LUQUER, C.E., Ph.D.....	<i>Tutor</i>
HERBERT P. WHITLOCK, C.E.....	<i>Assistant</i>

Courses

1—Blowpipe analysis—The tests for 40 elements and the qualitative analysis of minerals, alloys, and slags. Two afternoons a week laboratory, one half-year. Professor MOSES, Dr. LUQUER, and Mr. WHITLOCK

Required of first-year students in the Schools of Mines and Chemistry. Open to students in the College who have taken Chemistry 1.

2—Crystallography—History, general characters, laws, forms, simple measurements, and calculations. 2 hours lectures and conferences, one half-year. Professor MOSES

Required of first-year students in the Schools of Mines and Chemistry. Open to students in the College who have taken Physics 1.

8—Physical crystallography—Short laboratory course in determination of physical characters of crystals. 1 hour, one half-year. Professor MOSES

Required of fourth-year students in Organic Chemistry. Pre-requisite: Course 2, or equivalent.

3—General mineralogy—First half-year: definitions, principles, and laws, crystal forms, appearance and properties of common minerals, practical determination of minerals. Second half-year: physical properties of crystalline substances with practice in elementary determination of physical constants and measurement and delineation of geometric form. 2 hours lectures, 1 afternoon laboratory. Professor MOSES

Open to students in the College who have taken Chemistry 1 and Physics 1.

4—Descriptive and determinative mineralogy—Study of 200 important species, their properties, uses, and methods of determination. 2 hours lectures, 3 hours

laboratory, second half of first year and first half of second year. Professor MOSES and Dr. LUQUER

Required of first- and second-year students in the Schools of Mines and Chemistry. Open to juniors in the College and to candidates for the degree of A.M. or Ph.D., in their first year, whose minor subject is Mineralogy. Pre-requisite: Courses 1 and 2.

5—The minerals of building-stones—Study of common species, their properties, methods of determination, and their economic effect on building-stones. 2 hours lectures, and conferences. Dr. LUQUER and Mr. WHITLOCK

Required of second-year students in the course of Civil Engineering. Open to students in the College who have taken Chemistry 1, and to candidates for the degree of A.M. as a half-minor course.

6—Optical mineralogy—Principles, apparatus, and distinguishing characters of minerals in thin sections. 2 hours lectures and 1 afternoon for two months. Dr. LUQUER

Required of second-year students in the School of Mines. Open to candidates for the degree of A.M. as a half-minor course, supplementing Course 5, and to students in the College. Pre-requisite: Course 5, or equivalent.

7—Optical mineralogy—Longer course, including principles, apparatus, and distinguishing characters of minerals in sections; determination of optical constants; study of microstructure; microchemical tests; separation of constituents and preparation of sections. 12 hours for one year, or 6 hours for two years. Dr. LUQUER

Open to candidates for the degree of A.M. whose major subject is Mineralogy, and to candidates for the degree of Ph.D. whose minor subject is Mineralogy. Pre-requisite: Course 3, or equivalent.

9—Physical crystallography—Optical, thermal, electric, and magnetic properties of crystals, with experiments; the geometric form with measurement and delineation; the effects of mechanical forces; theories of structure. 12 hours for one year, or 6 hours for two years. Professor MOSES

Open to candidates for the degree of A.M. whose major subject is Mineralogy, and to candidates for the degree of Ph.D. whose minor subject is Mineralogy. Pre-requisite: Course 3, or equivalent.

10—Physical crystallography—Longer course, including study of the crystals of some group. 12 hours for two years. Professor MOSES

Open to candidates for the degree of Ph.D. whose major subject is Mineralogy. Pre-requisite: Course 3, or equivalent.

11—Mineralogy—Study of assigned group or species. Professor MOSES

Open to candidates for the degree of Ph.D. whose major subject is Mineralogy. Pre-requisite: Course 3, or equivalent.

NOTE

Course 7 is especially a minor course for geologists, Course 8 a minor course for chemists, and Courses 9 and 10 major courses for mineralogists.

Equipment

The work of the students in the college courses and in general mineralogy is performed in the blowpipe laboratory, a large room with conference tables and seats for about 75 men, and in the adjoining lecture room, in which are the student collections of crystal models and minerals. Students in optical

mineralogy use a separate room with north light, and for crystal measurements and monochromatic light determinations there is provided a large dark room.

The department is equipped for work in the university courses offered.

The mineralogical collection consists of about 30,000 labelled specimens, and includes a systematic collection, an economic collection of ores, building materials, and minerals used in chemical industries, a collection illustrating the genesis and alteration of minerals, a collection illustrating the character of minerals, and small collections of artificial minerals and New York City minerals. There are, in the lecture and conference room, a separate student collection and a lecture collection. Several thousand unlabelled specimens are used in determinative work. The department possesses also about 500 sections of minerals, and 1500 crystal models in wood and glass.

Among the collections of minerals that have been presented to the department from time to time are some that possess historic value, among which may be mentioned the Gillmore collection, made in Paris under the direction of the Abbé Haüy, and presented by the late Gouverneur Kemble of West Point; a collection of Schulsberg (Wis.) stalactites, exhibited at the Sanitary Fair; a fine suite of Russian minerals, presented by the Czar; a collection of American minerals, presented by the late Geo. T. Strong; two of the finest cerussites in the world; the Julien collection of minerals from Chesterfield, Mass.; the famous collection of Professor How, of King's College, Nova Scotia; and a very valuable collection made by Dr. Egleston in Japan.

In addition, a large number of gifts have been received, and these have been supplemented by careful purchasing and exchanging.

Dr. Egleston has recently presented his personal collection of about 5000 specimens, which has not yet been distributed.

Mining

HENRY S. MUNROE, E.M., Ph.D.....	<i>Professor</i>
ROBERT PEELE, E.M.....	<i>Adjunct Professor</i>
FRANK C. HOOPER, Met.E.....	<i>Assistant</i>

Courses

1—Excavation and tunnelling. 3 hours, first half-year. Professor PEELE

Excavation of earth—tools and methods employed; support of excavations; special methods for quicksand and other water-bearing material; steam shovels and other mechanical excavators; handling and transportation of excavated material; tables of comparative costs. Explosives—black powder, nitro-glycerine and its compounds, and other high explosives; their manufacture and use. Excavation of rock—methods of drilling and blasting; mammoth blasts; submarine blasting. Quarrying—plant and methods for quarrying different rocks. Tunnelling—methods for driving and timbering; handling and transportation of excavated material; drainage and ventilation of tunnels; submarine tunnels; permanent lining of tunnels; accidents in tunnelling; location of tunnels.

Required of second-year students in the courses of Mining Engineering and Metallurgy.

Pre-requisites: entrance requirements in Mathematics, Chemistry, and Physics.

2—Boring and shaft-sinking. 2 hours, second half-year. Professor PEELE

Boring—Methods and appliances for small depths and for deep boring; European rod system and cable tool or oil-well method; boring with diamond drill, for prospecting and other

purposes; survey of bore-holes. Shaft-sinking—methods and tools employed in soft material and in rock; sinking linings or drop-shafts, and other special methods of sinking in water-bearing formations and quicksand; drainage of shafts; handling and hoisting of excavated material. Shaft timbering and other systems of lining employed in special cases.

Required of second-year students in the courses of Mining Engineering and Metallurgy.
Pre-requisite: Mining 1.

2a—Mining and support of mine excavations. 1 hour, second half-year.
Professor MUNROE

Theoretical considerations, methods of breaking ground in coal and metal mining, and support of mine excavations by pillars of mineral, by timbering, by masonry, and by rock filling.

Required of second-year students in the courses of Mining Engineering and Metallurgy.
Pre-requisite: Mining 2.

Counts, together with Mining 6, 9, and 10, as a minor for the degree of A.M.

3—Exploration, development, and methods of working. 2 hours. Professor MUNROE

Mineral deposits, characteristics of beds, masses, veins, and other deposits, and the irregularities and disturbances to which they are subject, as affecting the work of exploration and mining. Examination and survey of mineral properties; relation of topography to geological structure; construction of maps and sections and tracing of probable outcrops as a guide to exploration. Prospecting by ditches, pits, and deep boring. Development; choice of methods; location of openings. Working of deposits and support of excavations; methods applicable to deposits of different thickness, inclination, and character. Coal mining; vein mining; working of thick deposits and soft-ore bodies. Salt mining. Surface workings. Hydraulic mining.

Required of third-year students in the courses of Mining Engineering and Metallurgy.

Pre-requisites: Mineralogy 3 or 4, Geology 2. Pre-requisites or parallels: Geology 3, Mining 1, 2, and 2a.

Counts, together with Mining 4 and 5, as a minor for the degree of A.M.

4—Ore dressing, milling, and the mechanical preparation of coal. 2 hours.
Professor MUNROE

The general principles and theory of dressing; preliminary operations; hand dressing; cleansing; crushing; jigging with and without preliminary sizing; slime concentration; milling of gold and silver ores; and description of typical dressing works and coal-washing plants in this country and abroad.

Required of third-year students in the courses of Mining Engineering and Metallurgy.

Pre-requisites: Mineralogy 3 or 4, Physics 1 or 2. Pre-requisite or parallel: Mechanics 1 or 2.

Counts, together with Mining 3 and 5, as a minor, or with Mining 5, 7a, and 8 as a major, for the degree of A.M.

5—Ore-dressing laboratory. Afternoon work for three weeks, second half-year. Professor MUNROE and Mr. HOOPER

During the second half of the fourth year students are instructed in the mechanical assaying of ores and coal by hand jigging and vanning, and in the adjustment and operation of concentrating machines.

Required of fourth-year students in the courses of Mining Engineering and Metallurgy.

Pre-requisite or parallel: Mining 4.

Counts, together with Mining 3 and 4, as a minor, or with Mining 4, 7a, and 8 as a major, for the degree of A.M.

6—Mine engineering. 2 hours first half-year and 1 hour second half-year.
Professor MUNROE

Extraction; methods and machinery; handling mineral in working places; underground haulage. Surface handling and transportation; arrangements for loading and unloading cars

and vessels, and for storing of minerals. Mineral railroads. Common roads. Drainage; sources of mine waters; methods for the control and raising of water; dams; drainage-levels. Water supply. Ventilation; air of mines; mine gases; methods of ventilation; control and measurement of air currents. Accidents to men in shafts, levels, and working places; fire-damp and dust explosions; mine fires; inundations; rescue and relief of men.

Required of fourth-year students in the courses of Mining Engineering and Metallurgy.

Pre-requisite or parallel: Mining 3.

Counts, together with Mining 2a, 9, and 10, as a minor for the degree of A.M.

7—Mine plant. 3 hours first half-year and 2 hours second half-year. Professor PEELE

Descriptions and critical discussion of the machinery employed in hoisting, drainage, and ventilation; air-compressing plant; construction and operation of machine-drills; types of plant best adapted to different conditions; erection and care of machinery; accidents, break-age, and repairs.

Lectures are given also upon the design of timber, masonry, and iron construction, head-frames, hoisting cages, ventilating fans, mine buildings, and other portions of mining plant.

Required of fourth-year students in the courses of Mining Engineering and Metallurgy.

Pre-requisites: Civil Engineering 5 and Mechanical Engineering 11. Parallels: Mechanical Engineering 12 and 13.

Counts, together with Mining 7a and 8, as a major for the degree of A.M.

7a—Mine constructions. 1 hour, second half-year. Professor PEELE

Building-stones; brick; limes; cements and concretes. Foundations in various soils; masonry, and timber construction, with special reference to mine work; mine buildings; trestles; ore-bins.

Required of third-year students in the courses of Mining Engineering and Metallurgy.

Counts, together with Mining 7 and 8, or with Mining 4, 5, and 8, as a major for the degree of A.M.

8—Design of mine plant. 5 afternoons first half-year and 4 afternoons second half-year. Professor PEELE and Mr. HOOPER

The students are assigned problems involving the design and construction of mine plant, in connection with the development of a mine. This work supplements the lectures on the design of mining machinery, involving reading and study, and the preparation of working drawings, bills of material, specifications, and estimates.

The work is done under constant supervision and advice in the drafting-room.

Required of fourth-year students in the course of Mining Engineering.

Pre-requisites; Mechanical Engineering 1 and 2. Parallel: Mining 7.

Counts, together with Mining 7 and 7a, or with Mining 4, 5, and 7a, as a major for the degree of A.M.

9—Mine surveying. 1 hour, second half-year. Professor MUNROE

This course supplements the practical work in underground surveying in connection with the summer school in mining. It includes the general principles of underground surveying, the construction of mine maps and models of mine workings, the measurement of contracts, the location of lines for new work.

Required of fourth-year students in the courses of Mining Engineering and Metallurgy.

Pre-requisites: Civil Engineering 1, 15, and 16.

Counts, together with Mining 2a, 6, and 10, as a minor for the degree of A.M.

10—Administration and mine accounts. 1 hour, second half-year. Professor MUNROE

Administration, organization, and business management, mine accounts, and cost sheets. Examination and valuation of mines.

Required of fourth-year students in the courses of Mining Engineering and Metallurgy.

Pre-requisite or parallel: Mining 6.

Counts, together with Mining 2a, 6, and 9, as a minor for the degree of A.M.

Summer School

11—The summer school of practical mining is held in June and July, at some mine or mines selected for the purpose, in the vacation between the third and fourth years, and lasts six weeks. Professor PEELE and Assistants

Pre-requisites or parallels: Mining 3 and 4.

The course of instruction includes three weeks detailed study of the plant and methods of working at some important mine or mines; one week practical mine surveying; one week excursion to other mines and mining regions; and one week geological work, surface and underground.

The course of study includes the subjects of shaft-sinking, drifting, stoping, timbering, underground haulage, hoisting, mine drainage, ventilation, surface plant and machinery, mine buildings, shops, houses, water supply, drainage, organization, and administration. The students are divided into small squads, and assigned each day to a foreman, or working gang of miners, or to a definite portion of the mines, for the study of some definite subject. Each squad of students is visited several times during the day by the instructor, who supplements the explanations of the miners and indicates subjects demanding special study and observation. Manual labor, and the acquirement of manual dexterity by the student, are subordinated to the development of his powers of observation, and to the careful and critical study of the work going on about him, and the recording of his observation and study in notes and sketches taken on the spot. The students' note-books are examined and criticised each evening. By thus carefully systematizing and directing the work of the student his time is economized, and as much ground is covered in a week as would be in a month under ordinary circumstances, and the work is done more thoroughly.

This summer school has been in successful operation since 1877, and has proved itself an indispensable adjunct to the course of instruction. It bears the same relation to the study of mining as laboratory work to the study of chemistry or physics, or clinical instruction and hospital practice to the study of medicine.

The summer school of 1896 was held in the Butte, Montana, copper and silver mining district. After completing the regular detail work in the Gagnon and Nettie mines, the class visited the Parrot, Anaconda, Silver Bow, and Rarus mines, also all the larger smelters in the vicinity of Butte.

In 1897 the summer school was held in Michigan. The detail work, occupying four weeks, was carried on in the mines of the Pittsburg and Lake Angeline Iron Co. Short visits were then made to the Lake Mine of the Cleveland Cliffs Iron Co., and the Lake Superior Section Sixteen Mine, and finally a few days were spent in the copper district, at the Atlantic mine and mill, the surface plants of the Calumet and Hecla and the Tamarack mines, and the Calumet and Hecla concentrating mills.

In 1898 the summer school was held in West Virginia and Virginia. The detail work was done in the bituminous collieries of the Caswell Creek Coal and Coke Co., near Bramwell, West Virginia. Visits were then made to the Pocahontas, Peerless, Norfolk, Angle, Pulaski, Crozer, and Turkey Gap collieries, all situated in the Pocahontas coal field. The last week of the session was spent in the Cripple Creek iron and zinc region of Virginia, where the class visited the Bertha, Wythe, and Cedar Run mines, the Bertha zinc furnaces, and the Pulaski iron furnace.

Required of students in the courses of Mining Engineering and Metallurgy, in the vacation between their third and fourth years.

Optional to the same students, if without conditions, in the vacation between the second and third years.

Graduate Courses

Special courses, consisting of personal instruction, reading, and experimental investigation, will be arranged for advanced students according to their individual needs and ability. These investigations will be made at mines and dressing works either in connection with the summer school or elsewhere as assigned, with additional work, as required, in the library and in the laboratories of the

department. These courses vary in difficulty and in the amount of time necessary, according as the student is a candidate for the degree of A.M. or Ph.D., and according as he pursues mining as a major or a minor subject. The time required is governed by the rule that a course or courses should occupy about 18 hours (outside reading and study included) a week if taken as a major subject, and about 9 hours a week if taken as a minor subject. The following are suggested :

12—Methods of mining—Critical study of methods used in some mining region, or for a certain class of deposits ; output per man, amount of timber and explosive required, and other details affecting cost. Study of conditions as determining choice of method. Determination of loss of mineral in mining. Accidents to men.

Pre-requisites : all the courses in Mining.

Major for the degree of A.M. or Ph.D.

13—Mining plant—Critical study of rock drilling, or coal cutting, or hoisting, or haulage, or ventilating plant at some mine or mines. Determination of efficiency and conditions affecting same.

Pre-requisites : Mining 7 and 8.

Major for the degree of A.M. or Ph.D.

14—Deep mining—Study of problems of deep mining, vertical versus inclined shafts, hoisting and pumping from great depths, temperature and ventilation, efficiency of labor, rock pressure as affecting methods of mining and timbering.

Pre-requisites : all the courses in Mining.

Major for the degree of A.M. or Ph.D.

15—Ore dressing—Critical study of some detail of the ordinary dressing methods, crushing, or screening, or classification, or jigging, or slime treatment, or dry concentration, or magnetic separation, or milling of gold or silver ores, or mechanical preparation of coal. Determination of efficiency, and of conditions essential to success.

Pre-requisites : Mining 4 and 5.

Major for the degree of A.M. or Ph.D.

16—Examination of a coal-washing plant, or an ore-dressing plant—4 to 6 weeks work in the mill and in the laboratory, with conferences.

Pre-requisites : Mining 4 and 5.

Minor for the degree of A.M.

17—Examination of a mineral property, or a mine—4 to 6 weeks devoted to field and underground work in the summer school of practical mining, with conferences at convenience of professor.

Pre-requisites : all the courses in Mining.

Minor for the degree of A.M.

18—Economic studies in mining—Study of existing conditions affecting the production and cost of some mineral or metal, as, for example, anthracite coal, copper, or gold.

Pre-requisites : all the courses in Mining.

Major or minor for the degree of A.M.

19—Mining and ore-dressing—Mining 3, 4, and 5. 4 hours, with laboratory work and reading as required.

Pre-requisites: Mining 1, 2, and 2a. Count together as a minor for the degree of A.M.

20—Mining engineering—Mining 2a, 6, 9, and 10. 3 hours lectures and reading as required.

Pre-requisites: Mining 1, 2, and 3. Count together as a minor for the degree of A.M.

21—Design of mine plant—Mining 7, 7a, and 8. 3 hours, and 5 afternoons drafting-room work.

Pre-requisites: Civil Engineering 5, and Mining 1, 2, and 3. Count together as a major for the degree of A.M.

22—Design of ore-dressing works—Mining 4, 5, 7a, and 8, with 1 hour conference additional, first half-year. 3 hours, and 5 afternoons laboratory and drafting-room work.

Pre-requisite: Civil Engineering 5. Count together as a major for the degree of A.M.

23—Mining 1, 2, 2a, 3, 4, 5, 6, 7, 7a, 8, 9, 10, 11, being all the undergraduate courses in the department of Mining.

Count together as a major and one minor for the degree of A.M.

Equipment

LECTURE ILLUSTRATIONS—The lectures on mining are illustrated by about 2000 blue prints from negatives made for the purpose. These prints are collected in scrap-books illustrating the different courses of lectures, and each student has the use of one of these books for reference during the lecture, and for home study. These blue prints have many advantages over the usual form of lecture illustrations by lantern-slides or wall diagrams. The latter are, however, used when necessary to supplement the blue prints.

MINING LIBRARY—The University Library contains complete sets of the transactions of all mining, metallurgical, and engineering societies, and of the more important periodical publications on these subjects. There is also a large and complete collection of books on mining, and all new publications of value are added as they appear. In addition, a small departmental library has been created, which is accessible to students at all times.

MINING MUSEUM—The subject of mining is illustrated by collections as follows: Maps of coal and metal mines of this and other countries. Working drawings, diagrams, and photographs of mine plant, and of mining and dressing machinery. Models of mines; of shafts, tunnels, and galleries, illustrating methods of sinking, driving, timbering, tubbing, and walling. Models of deep-boring apparatus, shaft-head gear, man engines, pumps, ventilators, safety-cages, mine cars, crushers, stamps, ore washers, shaking tables, and other dressing machines. Mining tools and mining machines: picks, shovels, sledges, drills, blasting apparatus, lamps, safety-lamps, anemometers, hand-power and machine drills. Ores and dressing products from typical works in this and other countries. Surveying instruments: geological compasses and clinometers, attraction compasses, dipping needles, hanging compasses and arcs, transits, lamp signals, rods, and apparatus for plumbing and measuring shafts.

Among the more notable exhibits are large relief models of two mines of the Cleveland Cliffs Iron Mining Co. of Michigan, a similar model of the Saratoga gold mine in Colorado, and a set of three glass models and two relief models of the Copper Queen mine in Arizona. There is also a large model of the St. Joseph Lead Co.'s dressing works at Bonne Terre, Missouri.

A very complete collection of working drawings of mine plant, and an unusually large collection of underground photographs, taken by magnesium light, are worthy of particular notice.

MINING LABORATORIES—Seven large rooms in the basement and sub-basement of Engineering are being equipped as laboratories for the department of Mining. These laboratories are not intended to replace the careful study of mining methods and of the operations of ore dressing at the mines and dressing works in connection with the summer school of mining, but are intended to supplement such study, and in particular to afford opportunities that cannot be obtained at the mines. When completed these laboratories will be unique in many respects, and in advance of anything yet attempted at any mining school, and will afford unequalled opportunities for study and research.

These laboratories will include :

THE LABORATORY FOR MECHANICAL ASSAYS will contain small crushers, rolls, and screens, and conveniences for sampling, hand-picking, jigging, and vanning small samples of ore, and for panning gold-bearing gravel.

THE LABORATORY FOR WORKING TESTS will contain small power jigs, a hand-jig, a buddle, a frame, a keeve, and other similar apparatus for working a ton or more of ore at a time.

THE LABORATORY OF DRESSING MACHINERY will contain full-sized machines of standard types, each arranged so that the products, heads, middlings, and tailings are returned at once to the same machine for retreatment. With a small quantity of ore each machine can thus be operated as long as may be necessary, and the student is afforded an opportunity to become familiar with the adjustments of the machine and the tests of proper and successful working. The apparatus now being installed includes a two-sieve jig, a three-sieve jig, and a five-sieve jig, a round table, and a vanner, and the necessary crushing and screening apparatus and classifiers.

THE LABORATORY FOR MILLING GOLD AND SILVER ORES includes a stamp mill, copper plates, pan and settler, which will be arranged to be run in connection with concentrating apparatus when necessary.

MINES AND DRESSING WORKS—Numerous coal, iron, and other mines, slate and stone quarries, and metallurgical works are easily accessible from New York in from one to four hours by rail. Magnetic iron mines in New York, New Jersey, and Pennsylvania ; hematite mines and stone quarries in the same states and in Connecticut ; anthracite mines in Pennsylvania ; and zinc mines in New Jersey and Pennsylvania. New York and adjacent states produce each year more than half the pig-iron and coal, and over one third of the total value of the mineral product of the whole country. New York City is the headquarters of numerous corporations operating mines and metallurgical works in this and other countries, and is one of the most important mining centres of the world. Within a radius of one hundred miles of New York City may be studied the best

practice in mining and metallurgy under most varied conditions, and the most modern and effective mining and dressing machinery and smelting plants in the country. By going a little farther one may reach the bituminous coal fields and the natural gas, oil, and salt regions in one direction, and the pyrites deposits and granite and marble quarries of Vermont in the other; while the excursions of the summer class in mining extend as far as the iron, copper, silver, and gold regions of Lake Superior, Montana, and Colorado.

Music

EDWARD ALEXANDER MACDOWELL, Mus. Doc. *Professor*
LEONARD BEECHER MCWHOOD, A.B. *Assistant*

The courses in this department fall into two divisions: the technic of musical composition, and general musical culture. The aim of the technical courses is to teach music theoretically and scientifically with a view to training musicians competent to teach and to compose. In the general courses, music is treated historically and æsthetically as an element of liberal culture; the technical side of the art is explained, and the lectures are supplemented by illustrations, analysis, and some practical class-work, such as cultivation of the sense of pitch, rhythm, and musical dictation.

Courses

1—General musical culture—The origin of music and its relation to speech and the emotions. Primitive music and instruments. The history of music from the earliest times up to the 19th century. Acoustics; harmony, counterpoint, and fugue; form; analysis; musical instruments in use up to the present century, with practical illustrations; musical dictation and cultivation of the sense of pitch and rhythm. 2 hours. Professor MACDOWELL

Open to all properly qualified university students, and, with the consent of the Dean of the College, to all properly qualified students of the College.

2—General musical culture—This course, which is a continuation of Course 1, treats of the development of forms, the song, romanticism, instrumental development and the composers for piano-forte, revolutionary influences, the virtuoso, modern orchestration and symphonic forms, the music drama, impressionism versus absolute music, and color versus form, the relationship of music to other arts, musical criticism. 1 hour. Professor MACDOWELL

Courses 1 and 2, while outlining the purely technical side of music, aim at giving a general idea of it from its historical and æsthetic side.

3—Practical theory—This course treats of general theory, dictation, harmony, comprising chords and their mutual significance, altered chords, suspensions, modulation, imitation, analysis, and the commencement of composition in the smaller forms. 2 hours. Lectures and class-work. Professor MACDOWELL

Open to all properly qualified university students, and, with the consent of the Dean of the College, to all properly qualified students of the College. This course, in connection with Courses 4 and 5, constitutes a three years' study of the subject.

4—Practical theory—This course treats in the first half-year of strict counterpoint, canon, choral figuration, and fugue. In the second half-year of free

counterpoint, canon and fugue, analysis, commencement of composition in the larger forms. The first half-year is confined to vocal writing, and, with Course 3, may be considered as a preparation for the second half-year, which includes instrumental writing. 2 hours. Lectures and class-work. Professor MACDOWELL

Open to all students who have taken Course 3, and to such persons, otherwise qualified, as can demonstrate to the Professor of Music, by examination or otherwise, that they are competent to profit by it.

5—Practical theory—This course treats of free composition, analysis, instrumentation, symphonic forms. In this course all the orchestral and other instruments are considered individually and collectively, and their technique, possibilities, and limitations are demonstrated. 2 hours. Lectures and class-work, with practical illustrations. Professor MACDOWELL

Open to all students who have taken Courses 3 and 4, and to all persons, otherwise qualified, who can demonstrate to the Professor of Music, by examination or otherwise, that they are competent to profit by it.

6—Melodic, rhythmic, and harmonic dictation, and the practical analysis of chords—No fee is attached to this course. It is required of students in Course 3, and open to other students in the department on permission. It may not be counted toward a degree. 1 hour, second half-year. Mr. MCWHOOD

7—Musical Seminar—This treats of the practical composition of music. Compositions by the members of the seminar are discussed and analyzed in the class-room. No fee is required, and it is open to all students in the department, subject to the approval of the Professor of Music. It may be counted toward a degree in connection with other courses in music. 1 hour. Professor MACDOWELL

Equipment

A collection of music and of books of reference is placed at the disposal of students. It includes many orchestral and opera scores, the piano-forte classics, and vocal music, besides many theoretical, historical, and biographical works.

In connection with the department are a University Chorus and a University Orchestra. Membership in either of these organizations is open to all students.

Neurology

M. ALLEN STARR, M.D.....	<i>Professor</i>
FREDERICK PETERSON, M.D.....	<i>Chief of Clinic</i>
WILLIAM H. CASWELL, M.D.....	<i>Clinical Assistant</i>
MORTON R. PECK, M.D.....	<i>Clinical Assistant</i>
PEARCE BAILEY, M.D.....	<i>Clinical Assistant</i>
C. E. ATWOOD, M.D.....	<i>Clinical Assistant</i>
A. W. FERRIS, M.D.....	<i>Clinical Assistant</i>
ARCHIBALD CAMPBELL, M.D.....	<i>Clinical Assistant</i>
E. S. STEESE, M.D.....	<i>Clinical Assistant</i>
R. H. CUNNINGHAM, M.D.....	<i>Clinical Assistant</i>
A. B. BONAR, M.D.....	<i>Clinical Assistant</i>

S. P. GOODHARDT, M.D.	<i>Clinical Assistant</i>
M. MAILHOUSE, M.D.	<i>Clinical Assistant</i>
SMITH ELY JELLIFFE, M.D.	<i>Clinical Assistant</i>
B. E. KRYSTALL, M.D.	<i>Clinical Assistant</i>

Courses

1—The diseases of the mind and nervous system—Didactic lectures. 1 hour for five months with demonstrations, illustrated with the magic-lantern, of the pathology of nervous diseases. Professor STARR

Required, in the third and fourth years, of candidates for the degree of M.D.

2—Clinical lectures at the Vanderbilt Clinic—At these clinics all forms of nervous disease, including insanity, are demonstrated. During the months of didactic instruction the clinics are so arranged as to illustrate the clinical side of the subject lectured upon. 1 hour. F. at 2 P.M. Professor STARR

Required, in the fourth year, of candidates for the degree of M.D.

3—Practical instruction in neurology—"Section teaching," by the chief of Clinic, at which a division of fifteen students is taught the practical examination of nervous patients, including electro-diagnosis and electro-therapeutics. 10 lessons for each student in the Vanderbilt Clinic. Dr. PETERSON

Required, in the fourth year, of candidates for the degree of M.D.

4—Insanity—4 clinics at the Ward's Island Insane Asylum. S. in October, 2 P.M. Dr. PETERSON

Optional, in the fourth year, for candidates for the degree of M.D.

Normal Histology

(See page 147)

Obstetrics

EDWIN B. CRAGIN, M.D.	<i>Lecturer</i>
ERVIN A. TUCKER, M.D.	<i>Tutor</i>
JAMES D. VOORHEES, M.D.	<i>Instructor</i>

Courses

1—Theory and practice of obstetrics—Lectures. 3 hours, from October 1 to March 15. Dr. CRAGIN

Required, in the third year, of candidates for the degree of M.D.

2—Recitations and demonstrations. 1 hour, for each student in the second year of the curriculum. One sixth of the class receives instruction daily, by recitations and demonstrations, in which specimens and models from the anatomical, physiological, and pathological museums are used. Dr. TUCKER

Required, in the second year, of candidates for the degree of M.D.

3—Practical instruction at the Sloane Maternity Hospital—Members of the graduating class in medicine are required each to attend at this hospital a certain number of cases of labor. For this purpose the students of the fourth year

are divided, at the beginning of the academic year, into sections of six, each section remaining on duty for two weeks. During this time they are furnished with lodgings, free of charge, in the hospital, so that they may be summoned quickly to cases of emergency. Daily bedside instruction is given by the Instructor, who is the resident physician at the Sloane Hospital, and an examination on the work of the week is held there by him every Saturday. A daily clinical lecture is also given at the hospital, and instruction upon the manikin. Dr. VOORHEES

Required, in the fourth year, of candidates for the degree of M.D.

The Sloane Maternity Hospital

(See Index.)

This is upon the grounds of the College of Physicians and Surgeons, and the service of the hospital is under the exclusive direction of the Lecturer in Obstetrics, the Instructor being also the resident physician, as above stated:

The number of deliveries averages over eleven hundred a year. These, with the obstetric operations, and the subsequent treatment of women and infants, afford invaluable bedside experience, such as is offered at no other medical school in this country.

Ophthalmology

HERMAN KNAPP, M.D.....	<i>Professor</i>
CHARLES H. MAY, M.D.....	<i>Chief of Clinic and Instructor in Ophthalmoscopy</i>
JOHN HERBERT CLAIBORNE, M.D.....	<i>Clinical Assistant and Instructor in Refraction and Motility</i>
WARD A. HOLDEN, M.D.....	<i>Clinical Assistant</i>
HENRY H. TYSON, M.D.....	<i>Clinical Assistant</i>
JACKSON M. MILLS, M.D.....	<i>Clinical Assistant</i>
CURTIS B. CARTER, M.D.....	<i>Clinical Assistant</i>

Courses

1—Clinical lectures, at the Vanderbilt Clinic, upon the diseases of the eye—In selected cases the diagnosis is made, treatment applied, and minor operations are performed before the class.

After the lectures, as opportunity offers, microscopic demonstrations of the pathological histology of the eye are made by Dr. Holden. 1 hour. Tu. at 2 P.M. Professor KNAPP

Required, in the third year, of candidates for the degree of M.D.

2—Practical instruction, at the Vanderbilt Clinic, in the use of the ophthalmoscope. 6 lessons for each student. Dr. MAY

Required, in the third year, of candidates for the degree of M.D.

3—Practical instruction, at the Vanderbilt Clinic, in the refraction and motility of the eye. 6 lessons for each student. Dr. CLAIBORNE

Required, in the third year, of candidates for the degree of M.D.

4—Hospital clinics in the diseases and the operative surgery of the eye, at the New York Ophthalmic and Aural Institute, 44 and 46 East 12th Street. Wed. from 2 to 3.40 P.M. To these clinics the students are invited in sections. Professor KNAPP

Optional, in the third year, to candidates for the degree of M.D.

ORIENTAL LANGUAGES

All the courses in Oriental Languages are open to women on the same terms as to men. Women wishing to enter any of the courses as special students or as candidates for a degree must register through Barnard College except that students of Teachers College may register direct.

Semitic Languages

RICHARD J. H. GOTTHEIL, Ph.D.....*Professor*
ABRAHAM YOHANNAN, A.M.....*Lecturer*

Courses 1, 2, 3, 4, 10, 12, 13, 15, 16, and 17, and the seminar, are open to seniors in Columbia College and to university students; Courses 5, 6, 7, 8, 9, 11, 14, to advanced students only. Courses 1, 2, 4, 10, 11, 12, 13, 15, 16, are open also to juniors in Columbia College.

All the courses in Semitic Languages except the seminar are open to auditors.

Courses in Hebrew

The course in Hebrew extends over three years. The first year is devoted to the study of the elements; the second, to the study of the syntax and the acquiring of ease in translating from Hebrew into English and from English into Hebrew; the third, to a critical study of one or more books of the Bible.

The attention of students in the College is directed to the fact that it is desirable that those who intend entering a theological seminary after graduation shall have had at least two years' previous training in Hebrew. Opportunity for this training is given the students of Columbia College, Hebrew being an elective in both the junior and senior classes.

1—Biblical Hebrew, elementary course—Davidson's *Introductory Hebrew Grammar*. 2 hours. Professor GOTTHEIL

2—Biblical Hebrew, second course—Rapid reading of the Book of Deuteronomy and the Prophecies of Jeremiah in connection with Gesenius' *Hebräische Grammatik* (26th ed.) and Driver's *Hebrew Tenses* (3d ed.). 2 hours, first half-year. Professor GOTTHEIL

3—Biblical Hebrew, third course—Interpretation of the Book of Hosea. 2 hours, second half-year. Professor GOTTHEIL

4—Rabbinical Hebrew—Selected readings from post-Biblical Hebrew historical works. 2 hours, first half-year. Professor GOTTHEIL

5—Rabbinical Hebrew—Selected readings (in Hebrew and Arabic) from the Jewish philosophical writings of the Middle Ages. 2 hours, second half-year. Professor GOTTHEIL

For Courses 4 and 5, a previous knowledge of Biblical Hebrew is demanded.

6—Rabbinical Hebrew—Lectures on *Post-Talmudic Hebrew Literature*, part ii. 2 hours, second half-year. Professor GOTTHEIL

Courses in Semitic Epigraphy

7—Interpretation of the Phœnician inscriptions, with an introduction to Semitic palæography and the history of the alphabet. Professor GOTTHEIL

Given in 1899-1900.

8—Interpretation of the Aramæan inscriptions of Sinjirli (*Mittheilungen aus den Orientalischen Sammlungen*, Heft xi, Berlin, 1893), and of the *Corpus Inscriptionum Semiticarum*, vol. ii. 1 hour. Professor GOTTHEIL

Given in 1900-1901.

9—Interpretation of the Sabæan and Hymyaritic inscriptions contained in the *Corpus Inscriptionum Semiticarum*, vol. iv. 1 hour. Professor GOTTHEIL

For Courses 7 and 8, which are open to advanced students only, a previous knowledge of Hebrew and Aramæan, respectively, is demanded; for Course 9, a previous knowledge of Arabic.

Courses in Assyrian

10—Elementary course—Study of the Syllabary, with readings from selected portions of Abel and Winckler's *Keilschrifttexte zum Gebrauch bei Vorlesungen*, and the study of Delitzsch's *Assyrian Grammar*. Professor GOTTHEIL

Given in 1899-1900.

11—Advanced course—The Babylonian accounts of the creation and flood (Paul Haupt, *Das Babylonische Nimrodepos*, and Fr. Delitzsch, *Assyrische Lesestücke*). Assyrian Syllabaries. 2 hours. Professor GOTTHEIL

Courses in Arabic

12—Elementary course—Study of Socin's *Arabic Grammar* with exercises in translating Arabic into English and English into Arabic. 2 hours, first half-year. Professor GOTTHEIL

13—Second course—Study of Brünnow's *Chrestomathie aus arabischen Prosaschriftstellern*. 2 hours, second half-year. Professor GOTTHEIL

14—Third course—Advanced work. First half-year: Interpretation of at-Tabari's history. Second half-year: Interpretation of selections from Arabic geographical works. 2 hours. Professor GOTTHEIL

Courses in Syriac

15—First course. First half-year: Nöldeke's *Syrische Grammatik*, in connection with selected readings from the Peshitta. Second half-year: Interpretation of selected portions of the *Acta Martyrum* (ed. Bedjan). 2 hours. Professor GOTTHEIL and Mr. YOHANNAN

16—Second course. First half-year: Interpretation of Lagarde's *Analecta Syriaca*. Second half-year: Interpretation of the Syriac Grammar (*Kethābhā dhesemhē*) of Bar Hebraeus. 2 hours. Professor GOTTHEIL

[In case there should be a demand for instruction in Modern Syriac, Mr. Yohannan will make arrangements for a course.]

Course in Ethiopic

17—Principles of the grammar and easy readings in connection with Prætorius' *Äthiopische Grammatik*. 1 hour. Professor GOTTHEIL

Given in 1899-1900.

Semitic Seminar

18—The seminar will take up the study of current questions in Semitic philology with special reference to modern methods of linguistic research.

Tu. evening at 8.15.

Attendance at the seminar meetings will be obligatory upon candidates for the degrees of Master of Arts and Doctor of Philosophy whose major subject is in Semitic Languages. The meetings are open also to advanced students one of whose minor subjects is in the department of Semitic Languages.

Course in Turkish

First half-year: Principles of the grammar, in connection with the study of A. Müller's *Türkische Grammatik* (*Porta Linguarum Orientalium*, pars xi). Second half-year: Exercises in Turkish conversation and in the reading of Turkish newspapers. 2 hours. Mr. YOHANNAN

Courses in Semitic Languages at the Union Theological Seminary

A detailed announcement of these courses is given in the circular issued by the division of Oriental Languages. Such courses may be counted as part of the work required for the degrees of Master of Arts and Doctor of Philosophy.

Indo-Iranian Languages

A. V. WILLIAMS JACKSON, L.H.D., Ph.D.....*Professor*
ABRAHAM YOHANNAN, A.M.....*Lecturer*

The courses of instruction in this department are intended to be introductory to the study of comparative philology, and of the history of religion, as well as to the study of the history, antiquities, and literature of India and Persia and also of Armenia. The course arranged for beginners in Sanskrit, Indo-Iranian 1, may be taken with advantage in connection with any of the Latin, Greek, or other linguistic courses.

Courses 1, 2, and 3 are open to all university students (including seniors in Columbia College as well as candidates for higher degrees and special students). In the case of Course 1, candidates for higher degrees will be required to supplement the study by some additional work that will be assigned, or by taking some kindred course in the department. Course 1 may also be taken as an elective by juniors in the College. Courses 4, 5, 6, 7, 10, 11, and 12 are open to advanced students only. Courses 8 and 9 are open to students pursuing one other course in the department.

Courses 1, 2, 3, 4, and 11 are intended to be given each year. Courses 5, 6,

7, 8, and 12 form a supplementary series. Two of this series will be given each year according to the requirements of the students in attendance.

Course 9, on some special Iranian subject, and Course 10, on Zoroaster and Buddha and their teaching, will be offered every second and third year respectively.

Courses

1—Sanskrit, elementary course — Whitney's *Grammar*, Perry's *Primer*, Lanman's *Reader*. 3 hours. Professor JACKSON

2—Avestan, elementary course—Grammar and reading of texts. Jackson's *Avesta Series: Part I, Grammar; Part II, Texts*. 2 hours. Professor JACKSON

Not given in 1898-99. To be given in 1899-1900.

3—Sanskrit, advanced course. First half-year: The Laws of Manu with the native Commentary; or a Sanskrit drama. Second half-year: Introduction to the study of the Veda. 2 hours. Professor JACKSON

4—Avestan, advanced course — Interpretation of texts, antiquities, and literature. Geldner's *Text of the Avesta*. 2 hours. Professor JACKSON

5—Pāli, elementary course—E. Müller's *Simplified Pāli Grammar*, Elwell's *Nine Jātakas*. 1 hour. Professor JACKSON

6—Old Persian cuneiform inscriptions—Spiegel's *Die altpersischen Keilinschriften*, Bartholomae's *Handbuch der altiranischen Dialekte*, Weissbach and Bang's *Die altpersischen Keilinschriften*. 1 hour, first half-year. Professor JACKSON

This course is to run parallel with the advanced Avestan.

Not given in 1898-99. To be given in 1899-1900.

7—Pahlavi, introductory course—C. de Harlez's *Manuel du Pehlevi*. 1 hour, second half-year. Professor JACKSON

This course is to run parallel with the advanced Avestan.

Not given in 1898-99. To be given in 1899-1900

8—Sanskrit literature—Lectures on some branch of the literature; rapid reading of assigned texts. 1 hour, first half-year. Professor JACKSON

11—Modern Persian, introductory course. First half-year: Grammar and reading. Salemann and Shukovski's *Persische Grammatik*. Second half-year: Interpretation of Sa'di's *Gulistān*. 2 hours. Mr. YOHANNAN

12—Modern Persian—Second-year course. Firdausi's *Shāh Namah*. 2 hours. Mr. YOHANNAN

Course in Armenian

1—Principles of the grammar, with selected readings. 1 hour, second half-year. Mr. YOHANNAN

Lectures

A course of afternoon lectures on the literature, antiquities, and religion of ancient India and Persia, open to all students of the University and to auditors, was given during the winters of 1895-96 and 1896-97. It is intended that this course of general lectures shall be offered each alternate year thereafter.

Course in the Study of Language

Introduction to the study of language. 2 hours. Professor JACKSON and Professor GOTTHEIL

Open to all university students. Not given in 1898-99.

Equipment

The Columbia University Library (260,000 volumes) contains most of the important periodicals which deal with Oriental research, among them the *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, *Journal of the Royal Asiatic Society*, *Journal Asiatique*, *Journal of the American Oriental Society*, *American Journal of Philology*, *Transactions of the American Philological Association*, *Wiener Zeitschrift für die Kunde des Morgenlandes*, *Indische Studien*, *Zeitschrift für Keilschriftforschung*, *Zeitschrift für Assyriologie*, *Revue Sémitique*, *Proceedings of the Society of Biblical Archaeology*, *Beiträge zur Assyriologie*, *Zeitschrift für Ägyptische Sprache*, *Revue d'Histoire des Religions*, *Revue des Études Juives*, *Orientalische Bibliographie*, *Hebraica*, a complete set of the publications of the various Congresses of Orientalists, *Jewish Quarterly Review*, *Revue d'Assyriologie*; of periodicals of wider range which contain matter of interest to Orientalists, *Zeitschrift für vergleichende Sprachforschung*, Bezenberger's *Beiträge zur Kunde der Indogermanischen Sprachen*, *Göttingische Gelehrte Anzeiger* *Indogermanische Forschungen*; and many weekly periodicals, such as *The Academy*, *Literarisches Centralblatt*, *Philologische Rundschau*, *Revue Critique*. The library has quite a rich collection of the publications of the learned societies of Europe—e. g., of the Academies of Berlin, Vienna, Leipzig, St. Petersburg, Brussels, Paris, and Rome (Lincei).

The books relating to East Indian and Iranian subjects in the University Library comprise already a good collection of the most important text-editions and works of reference, and additions are constantly being made. In Semitic philology, most of the best works will be found in the Library; care has been taken, especially in Assyriology, to buy all the more important publications. In the Avery Architectural Library, most of the monumental works relating to Eastern art and archæology will be found. Through the generosity of the trustees of Temple Emanuel, the Library now possesses the most complete collection of works in Rabbinical Hebrew to be found in this country. There is also a small collection of Hebrew and Arabic MSS., designed for the use of advanced students. The collections of the University Library are supplemented in the most valuable way in all branches of Orientalia by those of the Astor Library, where the privileges of an alcove-reader may be secured by the advanced student. A collection of old Babylonian tablets has been added to the department. These, together with the casts of tablets in the Metropolitan Museum of Art, furnish material for those who wish to devote themselves especially to the study of Babylonian and Assyrian.

The library of the Union Theological Seminary, which is accessible to advanced students at Columbia University, contains all the current theological periodicals—e. g., *Stade's Zeitschrift für Alttestamentliche Wissenschaft*, *Theologische Literatur-Zeitung*, *The Expositor*.

Orthopædic Surgery

VIRGIL P. GIBNEY, M.D.....	<i>Professor</i>
ROYAL WHITMAN, M.D.....	<i>Chief of Clinic and Instructor in Orthopædic Surgery</i>
HOMER GIBNEY, M.D.....	<i>Clinical Assistant</i>
LEONARD W. ELY, M.D.....	<i>Clinical Assistant</i>
HORACE S. STOKES, M.D.....	<i>Clinical Assistant</i>

Courses

1—Clinic in orthopædic surgery and diseases of joints at the Vanderbilt Clinic. 1 hour a week. F. at 12. Professor GIBNEY

Required, in the fourth year, of candidates for the degree of M.D.

2—Practical instruction at the Vanderbilt Clinic to classes of 20 members each. 12 lessons. Dr. WHITMAN

Required, in the fourth year, of candidates for the degree of M.D.

3—Operations at the Hospital for Ruptured and Crippled. Tu., 8.30 A.M. Professor GIBNEY

Optional, in the fourth year, for candidates for the degree of M.D.

Otology

ALBERT H. BUCK, M.D.....	<i>Clinical Professor</i>
WILLIAM COWEN, M.D.....	<i>Instructor and Chief of Clinic</i>
ROBERT LEWIS, Jr., M.D.....	<i>Instructor</i>
ALLAN G. TERRELL, M.D.....	<i>Clinical Assistant</i>
M. L. CARR, M.D.....	<i>Clinical Assistant</i>

Courses

1—Practical instruction in the diagnosis of the diseases of the ear, at the Vanderbilt Clinic. 8 lessons for each student. Drs. COWEN and LEWIS

This instruction is given to the students in sections of ten men each, Mondays and Fridays at 2 P.M.

2—Didactic instruction in pathology and therapeutic methods at the Vanderbilt Clinic. 4 lectures for each student. Professor BUCK

This instruction is given to the students in sections of twenty men each, on Wednesdays at 2 P.M.

Pathology

(Including Pathology, Normal Histology, Bacteriology, Clinical Microscopy, and Photomicrography.)

T. MITCHELL PRUDDEN, M.D., LL.D.	Professor of Pathology and Director of the Associated Laboratories
GEORGE C. FREEBORN, M.D.	Instructor in Normal Histology
TIMOTHY MATLOCK CHEESMAN, M.D.	Instructor in Bacteriology
IRA VAN GIESON, M.D.	Instructor in the Normal Histology and Pathology of the Nervous System
EUGENE HODENPYL, M.D.	Instructor in Pathology
JAMES EWING, M.D.	Instructor in Clinical Microscopy and Alonzo Clark Scholar
JOHN H. LARKIN, M.D.	Assistant in Pathology and Curator of the Museum of Pathology
EDWARD LEAMING, M.D.	Instructor in Photography
FREDERICK RANDOLPH BAILEY, M.D.	Assistant in Pathology and Normal Histology and Alumni Association Fellow in Pathology
OLIVER S. STRONG, Ph.D.	Assistant in Normal Histology
WILLIAM R. WILLIAMS, M.D.	Assistant in Normal Histology
CLARENCE A. MCWILLIAMS, M.D.	Assistant in Normal Histology
D. STUART DODGE JESSUP, M.D.	Assistant in Normal Histology
JOHN S. THACHER, M.D.	Demonstrator of Pathology
GEORGE P. BIGGS, M.D.	Demonstrator of Pathology
PHILIP HANSON HISS, Jr., Ph.D., M.D.	Assistant in Bacteriology
WILLIAM F. NEUMANN, M.D.	Assistant in Bacteriology
CHARLES NORRIS, M.D.	Tutor in Pathology
FRANCIS C. WOOD, M.D.	Assistant in Clinical Microscopy and Demonstrator of Pathology

For convenience of administration, and for the better association of allied themes, the laboratories of Pathology, Normal Histology, Bacteriology, Clinical Microscopy, and Photography are grouped together in the department of Pathology under the direction of the Professor of Pathology.

Courses in Pathology

1—Autopsy technique and pathological anatomy—Systematic instruction in the making of autopsies, with the demonstration of lesions, is given in turn to small sections of the second-year class in preparation for the more extended study of pathology in the third year, either at the College or at the Roosevelt, Presbyterian, New York, or Bellevue Hospitals. Once a week for eight weeks. DRS. HODENPYL, THACHER, BIGGS, and WOOD

Required, in the second year, of candidates for the degree of M.D.

2—Practical instruction in general pathology, pathological anatomy and histology, and in the bacteriology of the infectious diseases is given in the east laboratory on the top floor of the north wing of the Medical School. Each student is given about one hundred sections or other permanent preparations, illustrating the more important and common lesions. These he mounts for the microscope, and studies, making notes and sketches. This collection of specimens he retains for future reference.

The systematic course opens with a study of the various phases of degeneration and inflammation; tumors are next studied; then the acute infectious diseases, their lesions and their relationship to micro-organisms. The remainder of the course is devoted to the systematic study of the lesions of the viscera. Each student is furnished with a microscope and the necessary instruments and reagents. He is required to bring for reference in the laboratory the collection of slides prepared and studied in the course in normal histology. Delafield and Prudden's *Handbook of Pathological Anatomy and Histology* is used in this course. 6 hours a week for one half of the academic year. Professor PRUDDEN and Drs. HODENPYL, VAN GIESON, NORRIS, LARKIN, and BAILEY

Required, in the third year, of candidates for the degree of M.D.

3—Demonstrations in pathological anatomy—A demonstration is made twice a week to the class in pathology, in sections, of the material which may be newly gathered and from the permanent collection for the illustration of special themes. Drs. HODENPYL and LARKIN

Required, in the third year, of candidates for the degree of M.D.

4—Pathological anatomy and histology, experimental pathology, bacteriology as applied to medicine, and clinical microscopy—A limited number of graduates in medicine, or other advanced workers, are admitted to the special laboratories for the pursuit of advanced lines of study in these themes. Professor PRUDDEN, Drs. CHEESMAN, FREEBORN, HODENPYL, VAN GIESON, EWING, and NORRIS

Courses in Normal Histology

1—Practical instruction in general normal histology is given in the east laboratory on the upper floor of the north wing of the Medical School. Sections and other preparations of the simple tissues and the more important thoracic and abdominal viscera of the normal body are given to each student during the course.

These he is required to mount and study under the microscope, making notes and drawings of the entire series of specimens. This collection he retains for future reference, especially in the course in practical pathology in the third year (see above). Each student is supplied with a microscope and with a tray of instruments and reagents. Stöhr's *Text-Book of Normal Histology* is used in this course. 6 hours a week for one half of the academic year. Drs. FREEBORN, BAILEY, WILLIAMS, JESSUP, and MCWILLIAMS

Required, in the first year, of candidates for the degree of M.D. Elective for seniors in Columbia College.

2—Practical instruction similar in character and method to that under 1, but embracing as special themes the central nervous system, the skin, and the organs of special sense. 4 hours a week for one half of the academic year. Drs. VAN GIESON, FREEBORN, BAILEY, STRONG, WILLIAMS, JESSUP, and MCWILLIAMS

Required, in the second year, of candidates for the degree of M.D.

3—Practical instruction in microscopic technology is given to a limited number of graduates in medicine, or other qualified workers, in the special laboratories on the fourth floor of the north wing of the College Building. Dr. FREEBORN

Courses in Bacteriology

1—Practical instruction in bacteriology is given in the west laboratory on the fifth floor of the north wing of the College Building. This course opens with the study of the relationship of bacteria to other micro-organisms. It embraces the methods of staining, examining, and cultivating. The student is taught by practical exercises the methods of separating one species of bacteria from another, and the series of biological characters used in identification of the various forms. The general relationship of certain micro-organisms to disease is considered and illustrated. Finally some of the hygienic aspects of bacteriology are studied by experiments in the sterilization of infectious materials, disinfection of the hands, and by practice in biological air, water, milk, and soil analysis. 6 hours a week for one quarter of the academic year. Drs. CHEESMAN, HISS, and NEUMANN

Required, in the second year, of candidates for the degree of M.D.

2—Special laboratory course—There is an opportunity each year for a few graduates in medicine, or other qualified workers, to receive a special course in practical bacteriology. The laboratory is abundantly supplied with apparatus for the culture and study of micro-organisms, and has under cultivation a large collection of identified species. In this course the applications of bacteriology to sanitation and to practical medicine are held in view.

Methods of preparation, staining, microscopic study, and measurement of bacteria. Preparation of culture media; study and record of observation of selected typical species; systematic analyses for determination of unknown species; methods of isolation of species; qualitative and quantitative biological examinations of water, soil, and air; methods of determining pathogenic properties, disinfection, modes of testing value of germicides.

Text-books: Abbott's *Principles of Bacteriology*, Sternberg's *Bacteriology*.

This course requires attendance at the laboratory during the entire afternoon in January, February, and March. Dr. CHEESMAN

Minor for the degree of A.M. or Ph.D.

3—Laboratory course—As under Course 2, with additional study and determination of known species of bacteria; special study of the chemical products formed in the growth of bacteria; practical work in photomicrography, and the pursuit of some selected theme for original investigation. Professor PRUDDEN, and Drs. CHEESMAN and LEAMING

Major for the degree of A.M. or Ph.D.

Courses in Clinical Microscopy

1—Practical instruction in clinical microscopy is given in the west laboratory on the fifth floor of the north wing of the College Building. This course embraces the practical study of blood, urine, sputum, stomach contents, faeces, and milk, and instruction in such methods of clinical diagnosis as involve the usual microscopical, bacterial, and chemical analyses. 6 hours a week for one quarter of the academic year. Drs. EWING, NORRIS, and WOOD

Required, in the fourth year, of candidates for the degree of M.D.

2—Special laboratory course in clinical microscopy—Opportunity is offered each year to a limited number of qualified workers for advanced study on selected themes in the special laboratory for clinical microscopy. Drs. EWING and NORRIS

Photography, Photomicrography, and Skiagraphy

Practical instruction is given to a limited number of men in the photographic laboratories of the College, in the technique of photography, photomicrography, and skiagraphy for scientific purposes.

The time necessary for the acquirement of this technique varies with the facility of the student and the hours devoted to the theme, and is subject to special arrangement.

The facilities of these laboratories may be drawn upon for purposes of record and illustration by instructors in various departments of the College and by others. DR. LEAMING

Research

Research in pathology and bacteriology may be pursued in the laboratories of this department by a limited number of graduate students or practitioners of medicine or other advanced workers, under the direction of the professor. To such men the large collection of pathological specimens preserved for microscopical study and the collection of bacterial cultures belonging to this department are accessible. Professor PRUDDEN

Fellowships

For the fellowships open to persons wishing to do special work under the Professor of Pathology, see page 35.

Museum

The Museum of Pathology is made use of in the work of this department, both for the instruction of medical students, and as a place of deposit for specimens showing new or rare forms of lesions.

Equipment

The department of Pathology occupied in the autumn of 1895 the large additional space which the new college buildings furnish. The large class-room on the upper floor of the north wing is used, as formerly, for the class in normal histology and in pathology. The fourth floor is devoted to the pathological museum and to a large preparation laboratory, a workshop, cold-storage, and the like. The new space is devoted to a general laboratory and to private rooms for instructors and advanced workers in pathology, to undergraduate and to research work in bacteriology and clinical microscopy, and to a departmental library.

The entire space, new and old, is amply lighted, fully furnished, and equipped with such new apparatus as the rapidly growing sciences of pathology, bacteriology, and closely allied themes require.

Philosophy, Psychology, and Education

NICHOLAS MURRAY BUTLER, Ph.D., LL.D.....	<i>Professor</i>
JAMES MCKEEN CATTELL, Ph.D.....	<i>Professor</i>
JAMES HERVEY HYSLOP, Ph.D.....	<i>Professor</i>
MOSES ALLEN STARR, M.D.....	<i>Professor</i>
LIVINGSTON FARRAND, A.M., M.D.....	<i>Instructor</i>
CHARLES AUGUSTUS STRONG, A.B.....	<i>Lecturer</i>
FRANZ BOAS, Ph.D.....	<i>Lecturer</i>
SHEPHERD IVORY FRANZ, A.B.....	<i>Assistant</i>
WALTER TAYLOR MARVIN, Ph.D.....	<i>Assistant</i>
ADAM LEROY JONES, Ph.D.....	<i>Assistant</i>
JOHN FRANCIS WOODHULL, A.B.....	<i>Professor in Teachers College</i>
JAMES EARL RUSSELL, Ph.D.....	<i>Professor in Teachers College</i>
FRANK MORTON MCMURRY, Ph.D.....	<i>Professor in Teachers College</i>
RICHARD EDMUND DODGE, Ph.D.....	<i>Professor in Teachers College</i>
FRANK THOMAS BAKER, A.M.....	<i>Professor in Teachers College</i>
EUGENE HOWARD CASTLE, A.M.....	<i>Professor in Teachers College</i>
CHARLES BENJEH GILBERT, Ph.D.....	<i>Lecturer in Teachers College</i>

The courses of this division (comprising the department of Philosophy and Education, and the department of Psychology) fall into four groups, those on Philosophy, those on Psychology, those on Anthropology, and those on Education. In each group are courses intended primarily for undergraduates. These are best described as introductory courses, and their aim is to furnish a general acquaintance with the main subdivisions of Philosophy, Psychology, and Education as a whole. The courses known as Philosophy A, 1, and 2, Psychology 1, 2, and 8, and Anthropology 1 are of this character. By the use of the historical and comparative methods of study and exposition, students in these courses are introduced to a general survey of their respective subjects. While serving as introductory courses for students proposing to specialize in philosophy, psychology, anthropology, or education, these courses are particularly recommended to those students of law, medicine, political science, natural science, or theology who wish to acquire some knowledge of philosophy, psychology, anthropology, and education as part of a liberal education, or as supplemental to their own special lines of study.

The remaining courses in each group are intended primarily for advanced students. These courses may be taken only by those who have had the introductory courses, or their equivalent at some other university. The advanced courses are planned with reference to each other, and a student remaining three years in the division may pursue courses that cover the entire range of modern philosophy, psychology, and education.

Juniors in Columbia College and in Barnard College may elect Education 3, given at Teachers College, and count the same as part of the work required for the degree of Bachelor of Arts. Seniors may take any of the Education courses that are open to them, and count the same toward the degree of Bachelor of Arts, subject to the usual restriction that not more than 6 hours per week of elective work may be taken in any one subject.

A select number of advanced students, usually candidates for university degrees, are admitted to the seminars organized for training in research.

All of the courses offered by this division, except Philosophy A, Psychology 7, and Anthropology 2, are open to women on the same terms as to men. Women wishing to enter any of the courses as candidates for a degree or as special students must register through Barnard College, except that students of Teachers College may register direct.

All of the courses, except Philosophy A, Psychology 7, Anthropology 2, and the several seminars, are open to auditors on the usual terms.

Courses in Philosophy

A—Psychology. Hyslop's *Syllabus of Psychology*, James's *Principles of Psychology*—Lectures, practical exercises, and recitations. 3 hours, first half-year. Professor HYSLOP, assisted by Dr. JONES

This course is required of all members of the junior class in Columbia College, and must be taken by all university students who desire to enter the advanced courses, unless they have had an equivalent course elsewhere.

This course may not be counted for the degrees of Master of Arts and Doctor of Philosophy.

1—Introduction to philosophy, historical and critical. Weber's *History of Philosophy*; Windelband's *History of Philosophy*; Külpe's *Introduction to Philosophy*. Lectures, essays, and private reading. 3 hours. Professor BUTLER, assisted by Dr. MARVIN

This course serves as a general introduction to the study of philosophy, and is pre-requisite to Courses 3, 4, and 6.

2—Ethics, introductory course—Lectures, essays, and discussions. 2 hours. Professor HYSLOP, assisted by Dr. JONES

This course is pre-requisite to Courses 5 and 6.

3—The philosophy of Kant and his successors; Fichte, Schelling, Hegel, Herbart, and Schopenhauer—Lectures, essays, and private reading. 2 hours. Professor BUTLER, assisted by Dr. MARVIN

Given in 1899-1900 and each alternate year thereafter.

Course 3 is open only to students who have had Courses A and 1 or their equivalent.

4—British philosophy from Locke to Herbert Spencer; history and criticism of the association psychology and the philosophy of evolution. Locke's *Essay on the Human Understanding*, Berkeley's *Principles of Human Knowledge*, Hume's *Treatise of Human Nature*; the writings of Hartley, Brown, the Mills, and Bain; Herbert Spencer's *First Principles*. Lectures, essays, and private reading. 2 hours. Professor BUTLER, assisted by Dr. MARVIN

Given in 1898-99 and each alternate year thereafter.

Course 4 is open only to students who have had Courses A and 1 or their equivalent.

5—Practical ethics—Lectures, private reading, observation, essays, and discussions. 2 hours. Professor HYSLOP

Given in 1899-1900 and each alternate year thereafter.

Course 5 is open only to students who have taken Courses A and 2 or their equivalent.

- 6—Epistemology and metaphysics—Lectures, discussions, and essays. 2 hours. Professor HYSLOP
- 7—Descartes, Spinoza, and Leibniz—Lectures, essays, and discussions. 2 hours. Dr. MARVIN
- 8—History and principles of æsthetics—Lectures and discussions. 2 hours. Dr. JONES
- 9—Applied logic and scientific method. 3 hours, second half-year only. Professor HYSLOP, assisted by Dr. JONES
- 10—Journal Club—Reports and discussions on contemporary literature. 1 hour. Dr. MARVIN

Seminars

Ethical Seminar. Professor HYSLOP. One session weekly.

The purpose of the Seminar is training in methods of research in ethics. It is open only to candidates for the degrees of Master of Arts and Doctor of Philosophy. The subject for 1898-99 is: *Topics in Ethical Theory*.

Philosophical Seminar. Professor BUTLER. Two sessions each month.

The purpose of the Seminar is training in methods of research in the historical and comparative study of philosophy. It is open only to candidates for the degrees of Master of Arts and Doctor of Philosophy. The subject for 1898-99 is: *Topics in the History of Psychology*.

Courses in Psychology

1—Introduction to psychology—Lectures and demonstrations. 2 hours. Professors BUTLER, CATTELL, STARR, and HYSLOP, Drs. FARRAND and BOAS, and Mr. STRONG

The object of this course is to give a summary view of the subject-matter and methods of modern psychology. The ground covered is as follows:

- A. Prolegomena to psychology, including a sketch of the history of psychology. Six lectures. Professor BUTLER
- B. Physiological psychology. Eight lectures. Dr. FARRAND
- C. Experimental psychology. Eight lectures. Professor CATTELL
- D. Comparative psychology. Eight lectures. Dr. BOAS
- E. Pathological psychology. Three lectures. Dr. STARR
- F. General psychology. Eight lectures. Professor HYSLOP
- G. Philosophy of mind. Six lectures. Mr. STRONG

2—Experimental psychology, introductory course—Lectures, themes, and demonstrations. 2 hours. Professor CATTELL

3—Experimental psychology—Laboratory work. 2 or 4 hours, counting as a 1- or 2-hour course. Professor CATTELL, assisted by Mr. FRANZ

4—Anthropometry and individual psychology—Lectures, laboratory work, and reports. 2 hours. Professor CATTELL

5—Research work in experimental psychology. Daily. Professor CATTELL, assisted by Mr. FRANZ

6—General psychology, advanced course—Lectures, discussions, and private reading. 2 hours. Mr. STRONG

Not given in 1898-99.

7—Diseases of the mind and nervous system—Lectures and demonstrations. 1 hour. Professor STARR

8—Physiological psychology, general course—Lectures, demonstrations, and laboratory work. 3 hours. Dr. FARRAND

9—Abnormal and pathological psychology—Lectures and discussions. 1 hour, second half-year. Dr. FARRAND

Courses in Anthropology

1—Anthropology, general introductory course—Lectures, essays, and discussions. 2 hours. Dr. FARRAND

The second half of this course is given by Dr. RIPLEY of the Faculty of Political Science.

2—Anthropology, primitive culture—Lectures, papers, and discussions. 2 hours. Dr. FARRAND

Other courses in Anthropology are given by Dr. BOAS as follows :

3—Physical anthropology—general introductory course. 2 hours.

4—Physical anthropology—advanced course. 3 hours.

5—North American languages. 2 hours.

Courses in Education

1—History of education—Lectures, essays, and discussions. 3 hours. Professor RUSSELL

Required of all candidates for Teachers College diplomas.

2—Principles of education—Lectures, essays, and discussions. 2 hours. Professor BUTLER

Required of all candidates for Teachers College diplomas.

3—Applications of psychology in teaching—Discussions, essays, and collateral reading. 3 hours, second half-year. Professor McMURRY

Open only to students who have completed Philosophy A, or its equivalent, and prerequisite to Education 4 and all practice in teaching. Required of all candidates for Teachers College diplomas.

4—Observation and practice in teaching—Conferences and discussions following investigation of class-methods; the preparation of lesson-plans and practice in teaching under guidance. 3 hours of observation and practice and 1 conference weekly throughout the year, counting as a 3-hour course. Professor McMURRY, Miss WOHLFARTH, and the heads of departments concerned.

Open only to students who have completed Philosophy A and Education 3. Required of all candidates for the Teachers College diploma in elementary and kindergarten teaching.

5—General method—The ends of education, the relative worth of the means employed in their realization, the correlation of studies, and the relation of thought to memory—Lectures, reports on readings, and discussions. 3 hours during the first half-year. Professor MCMURRY

This course supplements Education 2, and may profitably be taken together with it.

6—School supervision and management—The practical problems of school economy—Lectures, essays, and discussions. 1 session weekly throughout the year, counting as a 2-hour course. Dr. GILBERT

7—Comparative educational systems—The national systems of Germany, France, and England compared with our own; free and compulsory education; administration and supervision; training of teachers; appointment; salaries and pensions; school curricula; methods of teaching; relations of elementary, secondary, and higher education; special problems in secondary education—Lectures and supplementary reading. 2 hours. Professor RUSSELL

Given in 1899-1900 and each alternate year thereafter.

—Secondary education—The historical development of secondary schools in Europe and America; the purpose and means of secondary education; the curriculum of the American high-school; the correlation of studies, and the educational problems involved in secondary education—Lectures and discussions based on reports of original investigation. 2 hours. Professor RUSSELL

This course is given in 1898-99 and each alternate year thereafter.

9—Physical and mental development of the child. 2 hours throughout the year. Mr. ———

Open to students who are taking or who have taken Philosophy A and Education 3.

12—Methods of teaching biology in elementary and secondary schools—Lectures, discussions, laboratory and field work. 3 hours, counting as a 2-hour course. Professor LLOYD

13—Methods of teaching English in secondary schools—Lectures, essays, discussions, reports of observation, and practice teaching. 3 hours, counting as a 2-hour course. Professor BAKER

14—Methods of teaching English in elementary schools—Lectures, essays, discussions, reports of observation, and practice teaching. 3 hours during the first half-year. Professor BAKER

16—Methods of teaching geography and geology in elementary and secondary schools—Lectures, discussions, laboratory and field work. 3 hours, counting as a 2-hour course. Professor DODGE

18—Methods of teaching Greek in secondary schools—Lectures, essays, discussions, reports of observation, and practice teaching. 3 hours, counting as a 2-hour course. Miss COCHRAN, with the co-operation of Professors PERRY and WHEELER, and Dr. YOUNG

19—Methods of teaching history in secondary schools—Lectures, essays, discussions, reports of observation, and practice teaching. 3 hours, counting as a 2-hour course. Professor CASTLE

20—Methods of teaching history in elementary schools—Lectures, essays, discussions, reports of observation, and practice teaching, 2 hours, second half-year. Professor CASTLE

21—Methods of teaching Latin in secondary schools—Lectures, essays, discussions, reports of observation, and practice teaching. 3 hours, counting as a 2-hour course, second half-year. Mr. C. M. BAKER

During the first half-year students will take as a part of the work of this course Latin **11**, Latin Bibliography, by Professor PECK.

22—Methods of teaching manual training in elementary and secondary schools—Lectures, reports on reading and observation, practical work. 3 hours, counting as a 2-hour course. Professor RICHARDS

23—Methods of teaching mathematics in secondary schools—Lectures, discussions, and practical work. 3 hours, counting as a 2-hour course. Professor BIKLÉ

24—Methods of teaching mathematics in elementary schools—Lectures, discussions, and practical work. 3 hours during the second half-year. Professor BIKLÉ

25—Methods of teaching physical science in the elementary and secondary schools—Physics, first half-year; chemistry, second half-year—Lectures, discussions, and practical work. 3 hours, counting as a 2-hour course. Professor WOODHULL

NOTE.—Education **12**, **13**, **15**, **16**, **17**, **18**, **19**, **21**, **23**, and **25** are required of candidates for the Teachers College diploma in the several subjects. A total of nine hours' credit for courses in subject-matter, selected with the approval of the Dean of Teachers College, must also be secured in each subject offered for the diploma.

Seminars

1—Administration of public education in the United States. Two sessions monthly throughout the year. Professor BUTLER

2—Training for citizenship—an historical study of the methods employed in China and Greece in their bearings on public education in the United States. One session weekly throughout the year. Professor RUSSELL

3—The curriculum of the elementary school. One session weekly throughout the year. Professor MCMURRY

Equipment

The equipment of the division is very complete and constantly being increased. It includes library facilities, laboratories of experimental and physiological psychology, a school of observation and practice, and the beginnings of an educational museum.

LIBRARY FACILITIES—The library facilities of Columbia University and of the city of New York, for students of Philosophy, Psychology, Anthropology, and Education, are unusually good. The University Library, open daily (except Sunday) for fifteen hours, contains more than 260,000 bound volumes and an

equal number of pamphlets, and is being added to at the rate of more than 20,000 volumes annually. Any book needed by an advanced student can usually be bought at once. The collection of books on the history of philosophy is very large, that on Kant and his philosophy being especially complete. Over 800 periodicals are regularly received at the college library, and among them will be found every journal of importance, American or foreign, dealing with philosophy, physiology, ethics, or education. Duplicates of the more important books and journals are placed in the Psychological Laboratory and may be used by students at their convenience. Students of Psychology will also find much of value in the Library of the Academy of Medicine, 15 West 43d Street, which is open to students free of charge. Students of Anthropology may avail themselves of the extensive collections of the American Museum of Natural History. The Astor and Lenox Libraries are also available for students, when introduced by one of the instructors, on especially favorable terms.

Students of Education have also at their disposal the Bryson Library at Teachers College. This collection now numbers more than 10,000 volumes, and is constantly being enlarged. The main purpose of the Library is to afford to special students of Education opportunities for study and research. The Library, therefore, consists chiefly of works on Education in English, French, and German, including books on philosophy, psychology, anthropology, history of education, school organization, and methods of teaching. In addition to these professional works the Library also contains a collection of books on history, literature, biography, geography, travels, art, science, and technology, adapted to the needs of pupils in elementary and secondary schools, with which students of Education and teachers should be familiar.

THE PSYCHOLOGICAL LABORATORY—The new laboratory occupies the eastern half of the second floor of Schermerhorn Hall. This building has been erected with special reference to study and research in the natural sciences, at a cost of over \$400,000 and is complete in every respect. The part occupied by the psychological laboratory was planned for this purpose after a careful study of psychological, physical, and physiological laboratories. It includes a large lecture room fitted up for lectures, demonstrations, and experimental work by students in the general courses, a seminar room, with a department library, and eight other rooms. These include a room for work in anthropology and physiological psychology, a room for a workshop and for preparations, an apparatus cabinet, and five research laboratories. Two of these are dark rooms, specially constructed to exclude sound as well as light, 20 feet high and well ventilated. The laboratory has light from the north and south, is supplied in all rooms with electric current of both high and low potential, and is in all respects equipped both for instruction and research.

The collection of apparatus has been gradually secured at a cost of over \$6000. It includes: (1) Outfit for making and repairing apparatus, measuring instruments, electric motors, etc. (2) The outfit of an anthropometric laboratory with which freshmen in the College and others are annually tested. (3) The apparatus, preparations, charts, etc., needed for complete courses in experimental and physiological psychology; and (4) The apparatus that has been used or is being used in special researches. A large part of the apparatus has

been made especially for the laboratory. It includes two chronographs, one of high speed for measuring very short time and one of low speed for continuous records, two electric chronoscopes with special improvements, a wheel chronoscope, a gravity chronoscope, and a pendulum chronoscope made for special researches, apparatus for studying the time, extent, and force of movement and the dynamogenic effects of sensations and emotions, instruments for the study of the sense of time and the perception of space, an Ellis harmonium and Koenig acoustical apparatus, a spectro-photometer, special color-mixers, Auzoux's models, and many other instruments, models, preparations, charts, etc., used in the courses of instruction and for research work. The outfit for the courses of instruction is now in large measure secured and the annual appropriations can be used chiefly for apparatus needed in special researches. This can be done to special advantage as a skilled instrument-maker is employed continuously in the workshop of the laboratory.

The courses in the zoölogical sciences are given in the same building, and the building for instruction in physics is adjoining. The library and the rooms occupied by the department of Philosophy are near by. The collections and apparatus in the departments of Zoölogy, Physics, and Physiology, and also of the American Museum of Natural History, are unusually complete and may be used by students of Psychology and Anthropology.

HORACE MANN SCHOOL—For students of Education there is afforded an exceptional opportunity for observation and practice in teaching. This is given in the school of observation and practice known as the Horace Mann School, which is maintained by Teachers College for this purpose. In this school every phase of school work, including the high school as well as the kindergarten and the elementary school, is to be found in operation. In all these grades there are being worked out, from year to year, in the light of educational theory and of practical experience, the typical educational problems of the day, and the students in Education are made sharers with the Faculty of Teachers College both in the processes and in the results of these investigations. Opportunities for practice in teaching and supervision are afforded to qualified students.

Physics

OGDEN N. ROOD, A.M.....	<i>Professor</i>
WILLIAM HALLOCK, Ph.D.....	<i>Adjunct Professor</i>
REGINALD GORDON, A.B.....	<i>Instructor</i>
HERSCHEL C. PARKER, Ph.B.....	<i>Tutor</i>
CHARLES C. TROWBRIDGE, B.S.....	<i>Tutor</i>
FRANK L. TUFTS, Ph.D.....	<i>Tutor</i>
WILLIAM S. DAY, Ph.D.....	<i>Tutor</i>
HENRY S. CURTIS, A.B.....	<i>Assistant</i>
HERBERT T. WADE, A.B.....	<i>Assistant</i>
THEODORE G. WHITE, Ph.B., A.M.....	<i>Assistant</i>
DANA C. WELLS, A.B., E.E.....	<i>Assistant</i>
WILLIAM C. ANDREWS, E.E.....	<i>Assistant</i>

Courses

1—General physics. Light and heat (first half-year). Sound and electricity (second half-year). Lectures and recitations, 3 hours; laboratory, 2 hours. Professor ROOD and Mr. GORDON

Laboratory work not required of first-year students in courses under the Faculty of Applied Science, with the exception of those in the course of Mechanical Engineering. Open to students in the College.

2—Magnetism and electricity (first half-year). Sound (second half-year). 2 hours lectures; 2 or 6 hours laboratory work. Text-books: Atkinson's *Ganot*, and Stewart and Gee's *Physics*. Professor ROOD

Open to candidates for the degree of A.M. whose minor subject is Physics.

3—Units and measurements (first half-year). Lectures on the absolute system of mechanical and electrical units; electrical measurements; the derivation and use of the Watt, Joule, Ampère, Volt, and Ohm.

Exact electrical measurements (second half-year). Lectures on the Farad, Coulomb, and units of electric and magnetic induction.

Electrical and magnetic measurements in the laboratory. 2 hours lectures; 2 to 8 hours laboratory. Text-books: Everett's *C. G. S. System of Units*, Glazebrook and Shaw's *Physics*, Kohlrausch's *Physical Measurements*, Wiedemann and Eberts' *Physics*, and A. Witz's *Physics*. Professor HALLOCK

Required of second-year students in the Electrical Engineering course. Second-year students in all courses under the Faculty of Applied Science, except that of Architecture, are required to attend the lectures of the first half-year, and to take two hours of laboratory work during the whole year. Open to candidates for the degree of A.M. whose minor subject is Physics. Pre-requisite: Course 1 or 2 with two hours laboratory work.

4—Light (first half-year). Lectures on the velocity, reflection, refraction, and dispersion of light. Achromatism, optical instruments, the eye, and Young's theory of color. Physical measurements in the laboratory.

Heat (second half-year). Lectures on the expansion of solids, liquids, and gases; on conduction, specific heat, tension of vapors, and radiant heat. Physical measurements in the laboratory. 3 hours lectures, 2 or 4 hours laboratory work. Text-books: Stewart and Gee, and Glazebrook and Shaw's *Physics*. Professor ROOD

Open to candidates for the degree of A.M. whose minor subject in Physics. Pre-requisite or parallel: Course 2.

5—Modes of designing and constructing apparatus (first half-year). 1 hour. Professor HALLOCK

Open to second-year students under the Faculty of Applied Science, and to university students. Pre-requisite or parallel: Course 2, 3, or 4.

6—Elementary meteorology (first half-year). The steam-engine (second half-year). 1 hour. Mr. GORDON

Pre-requisite or parallel: Course 2 or 4.

7—Electrical manipulation (first half-year). 1 hour. Theoretical comparison of electrical methods (second half-year). 2 hours. Mr. PARKER

Open to candidates for the degree of Electrical Engineer, and to university students. Pre-requisite or parallel: Course 3 or 4.

8—Undulatory theory of light (second half-year). 2 hours. Professor HALLOCK

Open to university students. Pre-requisite or parallel: Course 4 of seven hours.

Courses **2** to **13** are open to properly qualified students in the College.

31—General physics (shorter course for students in medicine). 3 hours lectures and 3 hours laboratory work, for a half-year. Professor HALLOCK

This course is delivered twice every year, and is required of candidates for the degree of M.D. in their first year.

Laboratory Courses

9—Electromotive force of standard and constant cells

10—Study of strength of electric currents

32—Absorption of sound by various materials

12—Colorimetry, and absorption spectra

13—Photometry

Open, with five hours laboratory work, to candidates for the degree of A.M., or, with eight hours laboratory work, to candidates for the degree of Ph.D. whose minor subject is Physics. Pre-requisite: Course 2 of eight hours.

14—Calibration of Wheatstone bridges

33—Factors of capillarity

16—Determination of index of refraction by special methods

17—Quantitative examination of the discharge of the induction coil

18—Viscosity of solids

Open to candidates for the degree of A.M., or, with ten hours laboratory work, to candidates for the degree of Ph.D., in their first year, whose major subject is Physics. Pre-requisite: Courses 2 and 4 of eight and seven hours.

19—Galvanometer construction for maximum efficiency

20—Advanced course in spectrometry

21—Ballistic-galvanometer work, inductance

22—Calorimetry

23—Radiant heat

24—Interference of light

25—Polarized light

26—Acoustic measurements

27—Thermo-electricity

28—Measurement of low resistance

29—Electrical insulation

30—The use of the microscope

Professors ROOD and HALLOCK, Mr. GORDON, and Mr. PARKER

Open, with ten hours laboratory work, to candidates for the degree of Ph.D., in their first year, whose major subject is Physics. Pre-requisite: Courses 2 and 4 of eight and seven hours.

Original research, conducted under the direction of Professors Rood and Hallock, is open to properly qualified persons, including candidates for the degree of Ph.D., in their last year, whose major subject is Physics.

Equipment

The laboratories and lecture-rooms of the department of Physics occupy four floors of Fayerweather on the eastern side of the university grounds.

The building is supplied with all ordinary conveniences, including electricity for power and light, compressed air, and steam. There is a vertical shaft 95 feet high, with gas, electric, and water outlets at every ten feet. In the sub-basement a constant-temperature room is placed twelve feet below the surface of the ground. The meteorological instruments presented to the University by President Low are set up with the recording portions in the small library on the second floor, and are connected by an electric cable with the vanes, anemometer, and rain-gauge, which with allied pieces of apparatus are placed upon an observation platform located on the roof of the building. There are two lecture-rooms, a library, an apparatus-room, and a small laboratory on the first floor, while the remaining three floors devoted to the department are occupied by laboratories of different kinds.

The general elementary laboratory includes in its equipment: three linear and three circular dividing engines of different designs; a Geneva Society comparator, and dividing engine; a Grunow cathetometer, spherometers, optical levers, calipers, and micrometers of many kinds, eight balances with weights. Specific-gravity apparatus, hydrometers, areometers, Becker and Jolly balances; standard mercurial barometers, aneroid and Mariott barometers, Kater's and Borda's pendulums, and apparatus for studying elasticity are provided; also monochords, Kundt's dust-figure apparatus, and sets of organ pipes and tuning-forks for the study of sound; thermometers and apparatus for their calibration, zero and boiling points are supplied; also there is apparatus for determination of co-efficients of expansion, for latent and specific heat, and for calorimetry.

The optical rooms are furnished with eight spectrometers of different designs, five spectroscopes, small telescopes, opera-glasses, microscopes, sets of lenses, prisms, and gratings, goniometers, a sextant, optical benches, photometers, saccharimeters, total reflectometers, and apparatus for colorimetry, polarized light, and spectroscopy.

In the rooms devoted to electricity are nine galvanometers of various patterns, high and low resistance, ballistic and dampened; electrometers, magnetometers, rheostats and bridges of all types; condensers, batteries, keys, arc and incandescent lamps, ammeters and volt meters, and four standard ohms.

The workshop is furnished with a lathe, planer, grinding head, vises, carpenters' and machinists' benches, and tools for work in metal, wood, and glass.

Advanced students are taught and encouraged to repair, alter, and construct apparatus needed for their special work.

Physiological Chemistry

RUSSELL H. CHITTENDEN, Ph.D.	<i>Director and Lecturer</i>
WILLIAM J. GIES, M.S., Ph.D.	<i>Instructor</i>
ALFRED NEWTON RICHARDS, A.B.	<i>Assistant</i>
ALLAN CHOTARD EUSTIS, B.S., Ph.B.	<i>Assistant</i>

Courses

I—Two similar courses in physiological chemistry are given during the year: one course to half the class during the first half-year, the other course to the remaining half of the class during the second half-year.

It is the aim of the course to have the lectures, conferences, and laboratory exercises so conducted that the student will be enabled to carry out experiments in the laboratory on the various topics under consideration in direct connection with the didactic instruction.

The course opens with a study of proteid substances with special reference to their chemical nature, relationships, reactions, and the like. The general nature of cell protoplasm, together with the cell nucleus and the contained nucleins, is then considered from a chemico-physiological standpoint, after which the various forms of epithelial and connective tissues are studied. Next in order come the muscular and nervous tissues, the several characteristic constituents being separated and their chemical and physiological properties noted. Attention is then directed to the chemical processes of salivary, gastric, pancreatic, and intestinal digestion, special stress being laid upon the various forms of enzyme action here represented, the conditions under which such action takes place being carefully studied, and the resultant products separated and compared both from a chemical and physiological standpoint.

Other topics to be taken up are the liver, glycogen, and bile, with special reference to their physiological properties, blood, lymph, milk, and urine. With regard to the latter secretion special emphasis is laid upon its chemical composition both in health and disease, and due regard is had to the teaching of proper methods for the detection of abnormal constituents. Further quantitative methods for the determination of total nitrogen of both urine and faeces are carefully considered in their bearing on the study of nutrition.

It is the aim of the course to present to the student, as thoroughly as the time will allow, the chemical side of physiology and mainly from a scientific standpoint, without, however, ignoring those practical questions which have special significance for the student of medicine. It is believed, however, that too much stress cannot be laid upon the purely chemico-physiological problems of digestion, secretion, and nutrition in general, and that such a study, though seemingly dealing with many questions not directly connected with clinical problems, constitutes a very essential part of that training necessary for a complete understanding of the normal processes of the body. 1 hour lecture, Professor CHITTENDEN. 1 hour conference and recitation, 6 hours laboratory, Dr. GIES and Assistants

Required of all candidates for the degree of M.D. in their second year. Open as an elective to qualified seniors who have had the requisite amount of chemistry, physiology, and general biology, as well as to properly qualified candidates for the degree of A.M. or of Ph.D.

Research

The laboratory is open to advanced workers and for original research in physiological chemistry under the direction of its officers.

Professor CHITTENDEN, Dr. GIES, and Assistants

Equipment

The department of Physiological Chemistry is located at the Medical School and possesses a well-equipped laboratory capable of accommodating 72 workers at one time. In addition there is a smaller laboratory for special work, together

with private rooms for the instructors. The laboratory is well supplied with all necessary chemical apparatus, balances, steam-baths, constant level water-baths, thermostats for artificial digestions, microscopes for micro-chemical work, spectrosopes, polariscope, centrifugal apparatus, and the like; in fact, the laboratory is well equipped with all useful apparatus for routine and research work in physiological chemistry.

Physiology

JOHN GREEN CURTIS, M.D.	<i>Professor</i>
FREDERIC SCHILLER LEE, Ph.D.	<i>Adjunct Professor and Demonstrator</i>
COLIN CAMPBELL STEWART, Ph.D.	<i>Tutor</i>

Courses

1—General physiology—Structure of protoplasm; physiology of the cell; physiological division of labor and evolution of special functions; irritability; contractility; phototaxis; geotaxis; chemotaxis; galvanotaxis; general principles of secretion; the nerve cell; the nerve impulse; reflex action; the germ cells. Lectures, 1 hour. Professor LEE

Open to qualified candidates for the degree of M.D.

Open as an elective to seniors in Columbia College who have had at least one year of general biology, and, in conjunction with Course 2, to such seniors and to qualified candidates for the degree of A.M. or of Ph.D.

2—Laboratory course in general physiology. 5 hours. Professor LEE and Dr. STEWART

Open to qualified candidates for the degree of M.D., and, in conjunction with Course 1, to seniors in Columbia College who have had at least one year of general biology, and to qualified candidates for the degree of A.M. or of Ph.D.

3—The physiology of man as related to that of other mammals and of lower vertebrates—This course treats in alternate years of (a) the physiology of nutrition and (b) the physiology of the muscular and nervous systems and the special senses. Certain introductory lectures are repeated annually. Lectures and demonstrations, 4 to 6 hours. Professors CURTIS and LEE and Dr. STEWART

Required, in the first and second years, of candidates for the degree of M.D.

Open as an elective to seniors in Columbia College, and, in conjunction with Course 4, to qualified candidates for the degree of A.M. or of Ph.D.

4—Laboratory course in special physiology. Professors CURTIS and LEE and Dr. STEWART

Open to qualified candidates for the degrees of M.D., A.M., and Ph.D.

Research

The laboratory is open for research, under the direction of its officers, to advanced workers.

Fellowships

For the Alumni Association Fellowships open to persons desiring to do special work in the department of Physiology, see page 35.

For the University Fellowships, also open as above, see page 26.

Marine Laboratory

An investigator's room at the Marine Biological Laboratory at Wood's Holl, Mass., has been provided by the University for the use of the department of Physiology. This renders possible, during the summer, researches upon the physiology of the marine fauna.

Equipment

The department of Physiology possesses :

(1) A laboratory, for research and the preparing of demonstrations, covering 1769 square feet and lighted on three sides.

(2) A small laboratory for histological research with special reference to physiological problems.

(3) Two rooms for optical or psychological work or for photography, communicating with the main research laboratory and with one another. One of these has a free southerly exposure for the heliostat.

(4) Two private laboratories for the professors of the department.

(5) A laboratory for practical instruction.

(6) A room for lectures and demonstrations to limited classes.

(7) Easy access to a large lecture-room specially fitted for experimental teaching.

(8) The Swift Physiological Cabinet, for the accommodation of a specially endowed and very full collection of apparatus of precision, mainly for research.

The physiological journals in English, German, and French are accessible at the laboratory to advanced students ; also the most important monographs and other books both modern and ancient. Weekly meetings are held and reports are made by members of the department upon recent physiological literature.

A skilled mechanic is employed to devote his entire working time at the laboratory to the care and improvement of the plant, including the making, altering, and repairing of special apparatus. He also assists in the scientific manipulations. The following machines and apparatus deserve mention :

An upright seven-horse-power steam-engine, mounted against a pier upon an iron bracket to avoid floor vibrations, and working a shaft which runs the whole length of the main research laboratory ; electric motors and shafting in the laboratory for practical instruction and in the demonstration room ; two steam lathes ; apparatus worked by motors for artificial respiration ; Ludwig's "Schlagwähler" ; kymograph for a long roll of paper, and high-speed drum kymograph, both worked by steam ; high-speed drum kymograph, worked by weights ; two drum kymographs of the spring pattern ; eight high-speed drum kymographs, worked by the electric motor ; Hürthle's kymograph for a very long band of smoked paper ; two single drums, to be revolved by hand ; four "Basel stands" for the fine adjustment of recording levers ; Zeiss scales and other instruments for reading and measuring curves, including a planimeter ; electro-magnetic chronographs and control hammer ; seconds pendulum ; interrupter clock ; Jaquet's recording chronometer ; automatic dry-contact tuning-forks ; short-beam quantitative balance ; copper voltmeter ; milliampère- and ampère-meters ; Wiedemann-du Bois galvanometer, with coils of high and low

resistance, Haüy's bar, telescope, and milk-glass scale ; capillary electrometers ; ohmmeter, for resistances of from 0.001 to 200,000 ohms ; Edelmann's faradimeter ; thirteen horizontal and two upright du Bois induction coils ; a complete collection of du Bois-Reymond's other apparatus ; moist chambers and muscle-levers ; upright rheochord ; mechanical tetanomotor ; differential rheotome ; Marey's tambours, cardiographs, stethograph, and explorer of the human muscles ; sphygmographs ; plethysmograph ; oncometers ; three single and one double recording mercurial manometers ; spring manometer of Fick ; manometers of Hürthle ; tonographs of von Frey ; "Stromuhr" ; frog-heart apparatus ; thermo-electric apparatus ; constant-pressure injection apparatus ; two mercurial gas pumps ; large spectroscope ; direct-vision spectroscope ; Ladd spectroscope ; four micro-spectroscopes ; heliostat ; sixteen microscopes and accessories ; Zeiss's and Westien's dissecting microscopes ; Thoma's microtome ; Anschütz's "Schnellseher" ; numerous instruments and models for the investigation and demonstration of the physiology of sight and hearing ; casts and models of the brain ; Dalton's apparatus for making sections of the human brain.

Political Economy and Finance

(See page 73)

Political Philosophy

(See page 109)

Portuguese and Rumanian

(See page 166)

Practice of Medicine

FRANCIS DELAFIELD, M.D., LL.D.....	<i>Professor</i>
WALTER B. JAMES, M.D.....	<i>Clinical Lecturer and Instructor in Hospital Diagnosis</i>
FRANK W. JACKSON, M.D.....	<i>Chief of Clinic and Instructor in Hospital Diagnosis</i>
GEORGE ROE LOCKWOOD, M.D.....	<i>Clinical Assistant and Instructor in Physical Diagnosis</i>
WILLIAM K. DRAPER, M.D.....	<i>Clinical Assistant and Instructor in Physical Diagnosis</i>
VAN HORNE NORRIE, M.D.....	<i>Clinical Assistant and Instructor in Physical Diagnosis</i>
JOHN W. BRANNAN, M.D.....	<i>Instructor in Hospital Diagnosis</i>
GEORGE MONTAGUE SWIFT, M.D.....	<i>Instructor in Medicine</i>
ANGIER B. HOBBS, M.D.....	<i>Clinical Assistant</i>
ARTHUR M. SHRADY, M.D.....	<i>Clinical Assistant</i>
ALFRED E. SUMNER, M.D.....	<i>Clinical Assistant</i>
ARTHUR R. BRAUNLICH, M.D.....	<i>Clinical Assistant</i>
WILLIAM ARMSTRONG, M.D.....	<i>Clinical Assistant</i>

Courses

1—The practice of medicine. Didactic lectures, 2 hours for five months, and 3 hours for three months. Professor DELAFIELD

Required, in the third and fourth years, of candidates for the degree of M.D.

2—Clinical lectures on general medicine at the Vanderbilt Clinic. 1 hour. Th. at 3 P.M. Professor DELAFIELD

Required, in the third and fourth years, of candidates for the degree of M.D.

3—Physical diagnosis. Practical instruction; 30 lessons for each student. Drs. LOCKWOOD, DRAPER, and NORRIE

Required, in the third year, of candidates for the degree of M.D.

4—Hospital diagnosis. Practical instruction; 20 lessons for each student. Drs. JACKSON, JAMES, and BRANNAN

Required, in the fourth year, of candidates for the degree of M.D.

5—Hospital clinics in general medicine. Roosevelt Hospital. Monday at 4 P.M., throughout the academic year. Professors DELAFIELD and PEABODY

New York Hospital. Saturdays at 9.30 A.M., and Mondays at 3 P.M. Professors DRAPER and PEABODY. (See "Materia Medica and Therapeutics.")

Presbyterian Hospital. Tuesdays at 3 P.M.

Attendance at hospital clinics is optional, in the third and fourth years, for candidates for the degree of M.D.

Provençal

(See page 166)

Psychology

(See page 151)

Public Law and Jurisprudence

(See page 117)

Rhetoric and English Composition

(See page 98)

Romance Languages and Literatures

ADOLPHE COHN, LL.B., A.M.	.....	<i>Professor</i>
HENRY ALFRED TODD, Ph.D.	.....	<i>Professor of Romance Philology</i>
CARLO LEONARDO SPERANZA, LL.B., A.M.	.....	<i>Adjunct Professor</i>
* BENJAMIN DURYEA WOODWARD, Ph.D.	.....	<i>Instructor</i>
LOUIS AUGUSTE LOISEAUX, S.B.	.....	<i>Tutor</i>
CURTIS HIDDEN PAGE, Ph.D.	.....	<i>Lecturer</i>
HENRY BARGY, A.M.	.....	<i>Lecturer</i>
DANIEL JORDAN, S.B., P.B.	.....	<i>Assistant</i>
JOHN DRISCOLL FITZ-GERALD, A.B.	.....	<i>Assistant</i>

* Absent on leave.

The department of the Romance Languages and Literatures has charge of all the courses of instruction and research throughout the University, dealing with the various languages that trace their origin to the speech of ancient Rome. To the chief of these languages, the French, Italian, and Spanish, a foremost place is naturally assigned in the work of the department; but special attention is also given, in the more advanced courses, to the remaining members of the family, several of which, such as Old and Modern Provençal, Catalan, Portuguese, Rhaeto-Romance, and Rumanian, are possessed of noteworthy literary and philological interest.

The department offers: (1) to students in Columbia College, practical instruction in French, Italian, and Spanish, courses in French, Italian, and Spanish literature, and introductory instruction in Romance philology; (2) to students in the School of Philosophy, advanced instruction in literature and in Romance philology, courses in the languages unprovided for in Columbia College, and also instruction of a pedagogical character; (3) to university students at large, and also to auditors, an opportunity to follow special courses; while advanced students in particular may receive the preparation necessary to meet the requirements in French made of every candidate for the degree of Ph.D. One of the aims of the department is to offer at least one course in each of the languages of the Romance group. Although no course in philology proper is offered to members of the lower classes in the College, it may be stated that from the outset care is taken to suggest the significance of the historical development of the language taught, so as to furnish a solid foundation for grammatical knowledge, and to awaken in some portion of the students a taste for philological research.

The courses at present offered are grouped under the following headings: French, Provençal, Italian, Spanish, Portuguese, Rumanian, Romance Philology.

Courses 9 and 10, under French, are given by Professor BRANDER MATTHEWS of the department of Literature.

Courses in French

Elementary course for university students.

Books: Chardenal, *Complete French Course*; Super, *French Reader*; Labiche et Martin, *Le Voyage de M. Perrichon*; Halévy, *L'Abbé Constantin*; Sandeau, *Mademoiselle de la Seiglière*; About, *La Mère de la Marquise*; also, if time serve, Sand, *La Mare au diable*. 3 hours, first half-year, 2 hours, second half-year. Mr. JORDAN

Intended for *advanced students* from any department of the University who have omitted to take French in the earlier part of their course. It is therefore expected that work can be pushed forward fast enough to enable them to join Course 1 at the beginning of the second half-year. No examination will be conducted in this course. Students preparing for the entrance examination in French will not be admitted.

A—Elementary course for freshmen.

Books: Chardenal, *Complete French Course*; Grandgent, *French Composition*; Super, *French Reader*; Daudet, *Choix de Contes*; Halévy, *L'Abbé Constantin*; George Sand, *La Mare au diable*; Mérimée, *Colomba*; Labiche et Martin, *Le Voyage de M. Perrichon*.

Outside reading, Foncin, *Le Pays de France*, or Rambaud, *Petite Histoire de la civilisation française*.

3 hours. Professor COHN and Mr. FITZ-GERALD.

Prescribed for freshmen who entered the College without presenting French.

B—Elementary course for freshmen. The work is intended for freshmen who wish to take Course 2 in their sophomore year and is the equivalent of Courses A and 1 combined. It is accepted as a substitute for Course A.

Books: Chardenal, *Complete French Course*; Edgren, *French Grammar*; Grandgent, *French Composition*; Daudet, *Choix de Contes*; Halévy, *L'Abbé Constantin*; George Sand, *La Mare au diable*; Mérimée, *Colomba*; About, *Les Mariages de Paris*; Labiche et Martin, *Le Voyage de M. Perrichon*; Sandeau, *Mademoiselle de la Seiglière*; Augier et Sandeau, *Le Gendre de M. Poirier*; Molière, *L'Avare*, *Le Bourgeois gentilhomme*.

5 hours. Mr. LOISEAUX and Mr. FITZ-GERALD.

1—Grammar, reading, composition.

Books: Edgren, *French Grammar*; Grandgent, *French Composition*; George Sand, *La Mare au diable*; Mérimée, *Colomba*; Fontaine, *Les Historiens français du XIXe siècle*; About, *Les Mariages de Paris*; Belot et Villetard, *Le Testament de César Girodot*; Labiche et Martin, *Le Voyage de M. Perrichon*; Sandeau, *Mademoiselle de la Seiglière*; Molière, *L'Avare*, *Le Bourgeois gentilhomme*.

Outside reading: GEORGE SAND, *Nanon*.

3 hours. Dr. PAGE and Mr. JORDAN.

Open to freshmen and sophomores who have passed the entrance examination in French.

2—General introduction to the study of French literature. Composition.

Books: Corneille, *Horace*; Racine, *Phèdre*; Molière, *Le Misanthrope*; La Fontaine, *Fables choisies*; Mme. de Sévigné, *Choix de lettres*; Bossuet, *Oraisons funèbres*; Marivaux, *Le Legs*; Voltaire, *Prose* (extracts, edited by Cohn and Woodward); Bowen, *Modern French Lyrics*; Victor Hugo, *Hernani*, *Ruy Blas*; Alfred de Musset, *Selections* (ed. Kuhns); Pailleron, *Le Monde où l'on s'ennuie*; Sainte-Beuve, *Extraits des Causeries du lundi*; Gazier, *Petite Histoire de la littérature française*.

Outside reading: Voltaire, *Le Siècle de Louis XIV*; second half-year, one of the following, to be selected by the student: Mme. de Staël, *Corinne*; Victor Hugo, *Quatrevingt-treize*; A. de Vigny, *Cinq Mars*.

3 hours. Dr. PAGE.

Open to students, not seniors, who have taken Courses B or 1, or their equivalent.

3—French rhetoric.

Books: Larive et Fleury, *Troisième année de grammaire*; La Fontaine, *Fables*; Leune, *Difficult Modern French*; Daudet, *Contes*; Paul Bourget, *Extraits choisis* (ed. Van Daell); Fontaine, *Les Poètes français du dix-neuvième siècle*, *Les Historiens français du dix-neuvième siècle*.

Outside reading: Reinach, *L'Éloquence française depuis la Révolution jusqu'à nos jours*; Effinger, *Extraits de Sainte-Beuve*.

3 hours. Mr. LOISEAUX

Open to students who have taken Course 2 or its equivalent.

4—History of French literature in the seventeenth century.

Books: Descartes, *Discours de la méthode*; Pascal, *Les Provinciales* (letters 1, 4, 13, edition Brunetière, Paris, Hachette); Corneille, *Théâtre choisi*; Molière, *Œuvres complètes*; Racine, *Œuvres complètes*; Boileau, *Art poétique*; Bossuet, *Oraisons funèbres*; La Rochefoucauld, *Maximes*; La Bruyère, *Les Caractères*; Sévigné, *Choix de Lettres*; Lanson, *Histoire de la littérature française*.

Rimbaud's *Histoire de la civilisation française*, and Brunetière, *Manuel de l'histoire de la littérature française*, are strongly recommended as collateral reading.

3 hours. Professor COHN

Open to students who have taken Course 2 or its equivalent.

The following courses, with the exception of Course 12, are open only to students who have taken at least Course 4, or who can offer a satisfactory equivalent for the work therein described.

5—History of French literature in the eighteenth century: Voltaire.

3 hours. Professor COHN

Not given in 1898-99. Will be given in 1899-1900.

6—History of French literature in the eighteenth century: Montesquieu, Rousseau, the Encyclopedists.

Books: Lanson, *Histoire de la littérature française*; Montesquieu, *Lettres persanes*, *Esprit des lois* (first five books and extracts, edited by Paul Janet, Paris, Delagrave); Rousseau, *Discours sur les sciences et les arts*, *Lettre sur les spectacles*, *Contrat social* (all these may be had in one volume, published by Garnier frères, Paris), *Emile* (Livre IV, including the *Profession de foi du vicaire savoyard*); *Pages choisies de J. J. Rousseau* (édition Rocheblave); Diderot, *Extraits* (édition Fallex); D'Alembert, *Discours préliminaire de l'Encyclopédie*; Beaumarchais, *Mémoires*, *Le Mariage de Figaro*; Mirabeau, *Morceaux choisis*.

Rimbaud's *Histoire de la civilisation française*, and Brunetière, *Manuel de l'histoire de la littérature française*, are strongly recommended as collateral reading.

3 hours. Professor COHN

7—History of French poetry in the first half of the nineteenth century.

Books: Rousseau, Chateaubriand, Th. Gautier, *Pages choisies* (collection Colin); Lamartine, *Méditations*, *Nouvelles Méditations*, *Harmonies*; Hugo, *Théâtre*, *Odes et Ballades*, *Orientales*, *Feuilles d'automne*, *Les Rayons et les Ombres* (the most convenient edition of Hugo's works is the small *ne varietur* edition, separate volumes of which sell at two francs, Paris, Hetzel-Quantin); Musset, *Poésies*; Vigny, *Poèmes*, *Journal d'un poète*.

2 hours. Mr. BARGY

8—History of French poetry in the second half of the nineteenth century.

2 hours. Dr. PAGE

Not given in 1898-99. Will be given in 1899-1900.

9—The French dramatists of the nineteenth century.

2 hours. First half-year. Professor BRANDER MATTHEWS

Identical with first half of Literature 4.

10—Molière and his dramatic method.

2 hours. First half-year. Professor BRANDER MATTHEWS

Identical with first half of Literature 5.

11—History of literary criticism in France, especially Sainte-Beuve and Brunetière.

No book is especially prescribed for this course, but every student will be expected to make constant use of the resources of the University Library. Special subjects will be assigned to him, upon which he will have to report before the class.

2 hours. Dr. PAGE

12—History of the French language.

Book : Darmesteter, *Cours de grammaire historique*.

2 hours. Professor TODD

Open to students who have taken Course 2.

13—Old French. Reading of selected extracts.

Books : Clédât, *Morceaux choisis des auteurs français du moyen âge* ; Gaston Paris, *La Littérature française au moyen âge* ; *Extraits de la Chanson de Roland*.

2 hours. First half-year only. Dr. WOODWARD

Not given in 1898-99.

14—The French chroniclers of the Middle Ages.

Books : Petit de Julleville, *Chroniqueurs français du moyen âge* ; Gaston Paris, *La Littérature française au moyen âge*.

2 hours. Second half-year only. Dr. WOODWARD

Not given in 1898-99.

15—Writers of the sixteenth century, especially Montaigne.

Books : Darmesteter et Hatzfeld, *Le seizième siècle en France* (Paris, Delagrave) ; Montaigne, *Essais*, Louandre's edition (Paris, Charpentier), is recommended ; Sainte-Beuve, *Tableau historique et critique de la poésie française au seizième siècle* ; Du Bellay, *Défense et illustration de la langue française*.

2 hours. Mr. LOISEAUX

16—Critical bibliography of French literature from the sixteenth to the nineteenth century. 2 hours. Professor COHN

17—Methods of teaching French. 2 hours. Professor COHN

Open not only to students in Columbia University, but also to students in the Teachers College.

Seminar—Special topics in Romance literature. The French drama from Racine to Beaumarchais. 2 hours. Professor COHN

N.B.—For other advanced courses in French language and literature, see under Romance philology.

Optional Courses

French conversation (elementary course). 1 hour. Mr. JORDAN

French conversation (advanced course). 1 hour. Mr. BARGY

Course in Provençal

1—Old Provençal.

Books: Appel, *Provenzalische Chrestomathie*; Gröber's *Grundriss* (Strasburg, 1888).

1 hour. Professor TODD

Courses in Italian

1—Elementary course—Grammar, reading, composition.

Books: Grandgent, *Italian Grammar*; Grandgent, *Italian Composition Book*; L. Morandi, *Prose e Poesie*.

3 hours. Professor SPERANZA

Open to all students, not seniors, who have satisfied the requirement in French and German. It may not be taken at the same time with Spanish 1.

2—Italian literature in the sixteenth century, composition. 3 hours. Professor SPERANZA

Books: Fr. Torraca, *Manuale della letteratura italiana* (recent edition), the school editions of *Orlando furioso*, *Gerusalemme liberata*, and *Del Principe*.

Open only to students who have taken Course 1 or its equivalent.

3—Italian literature in the fourteenth and fifteenth centuries, exclusive of the Divina Commedia. Composition.

3 hours. Professor SPERANZA

Open only to students who have taken Course 1 or its equivalent.

Not given in 1898-99. Will be given in 1899-1900.

4—Critical study of Dante's Divina Commedia. 2 hours. Professor SPERANZA

5—History of Italian literature—Lectures and private reading. 1 hour. Professor SPERANZA

N.B.—For other advanced courses in Italian language and philology, see under Romance philology.

Courses in Spanish

1—Elementary course—Grammar, reading, composition.

Books: Knapp, *Spanish Grammar*; Galdós, *Doña Perfecta*; P. A. de Alarcon, *El Final de Norma*; Brenton de los Herreros, *La Independencia*.

3 hours. Mr. LOISEAUX

Open to all students, not seniors, who have satisfied the requirement in French and German. It may not be taken at the same time with Italian 1.

2—The Spanish novela in the time of Cervantes, composition.

Books: Cervantes, *Don Quijote*; *Entremeses*; *Novelas Ejemplares*; Juan Calderon, *Cervantes Vindicado*.

3 hours. Professor SPERANZA

Open only to students who have taken Course 1 or its equivalent.

3—The classical dramatists of Spain : Lope de Vega, Calderon, etc. Composition. 3 hours. Professor SPERANZA

Open to students who have taken Course 1 or its equivalent.

Not given in 1898-99. Will be given in 1899-1900.

4—The origins of Spanish poetry. El Poema del Cid. 1 hour. Professor TODD

5—History of Spanish literature—Lectures and private reading. 1 hour. Professor COHN

N.B.—For other advanced courses in Spanish language and philology, see under Romance philology.

Courses in Portuguese and Rumanian

The following two courses are open only to graduate students who have a knowledge of French and of at least one other Romance language, as well as a reading knowledge of German :

1—Portuguese.

Books : Lencestre, *La langue portugaise* ; Camoens, *Os Lusíadas*.

2 hours. Professor TODD

2—Rumanian.

Books : Candréa, *Grammaire roumaine (unfinished)* ; Cionca, *Praktische Grammatik der Rumänischen Sprache* ; Tocilescu, *Manual de Istoria Română*.

2 hours. Professor COHN

Courses in Romance Philology

1—Introduction to Romance philology. 2 hours. Professor TODD

Open to seniors in Columbia College and to university students.

The following courses are open only to university students :

2—The works of Chrétien de Troyes. 1 hour. Professor TODD

3—Old French dialects.

Books : Gröber, *Grundriss* ; Bartsch and Horning, *La Langue et la Littérature françaises* ; Suchier, *Reimpredigt* ; Philippe de Thaan, *Comput* (Mall's edition).

1 hour. Professor TODD

Not given in 1898-99. Will be given in 1899-1900.

Seminar—Research supplementary to Körting's *Lateinisch-romanisches Wörterbuch*. 2 hours. Professor TODD

N.B.—Weekly lectures in French, Italian, and Spanish, open to all members of the University, are given by the members of the department and by distinguished European lecturers.

The Romance Club, which consists of all the instructors and advanced students in the department, holds fortnightly meetings in which the latest contributions to philology and literature in the field of the department are reported upon and discussed.

Equipment

The Library of Columbia University is well supplied with French, Spanish, and Italian works, as well as with works upon Romance philology. Its list of periodicals of interest for students in the department is especially rich. The Library has also complete sets of the most important series and collections, such as the *Altfranzösische Bibliothek*, *Romanische Bibliothek*, publications of the Modern Language Association, publications of the *Société des anciens textes français*, *Histoire littéraire de la France*, *Ausgaben und Abhandlungen aus dem Gebiete der romanischen Philologie*, *Jahrbuch für romanische und englische Sprachen*, and the like.

Scandinavian

(See page 102)

Semitic Languages

(See page 141)

Sociology and Statistics

(See page 73)

Spanish

(See page 66)

Surgery

WILLIAM T. BULL, M.D.	<i>Professor</i>
ROBERT F. WEIR, M.D.	<i>Professor</i>
CHARLES MCBURNEY, M.D.	<i>Professor of Clinical Surgery</i>
FRANK HARTLEY, M.D.	<i>Clinical Lecturer and Instructor in Operative Surgery</i>
FRANCIS H. MARKOE, M.D.	<i>Clinical Lecturer</i>
BERN B. GALLAUDET, M.D.	<i>Clinical Lecturer</i>
ANDREW J. MCCOSH, M.D.	<i>Clinical Lecturer</i>
CHARLES T. POORE, M.D.	<i>Clinical Lecturer</i>
ROBERT ABBE, M.D.	<i>Clinical Lecturer</i>
ELLSWORTH ELIOT, JR., M.D.	<i>Chief of Clinic and Instructor in Minor Surgery</i>
ALEXANDER B. JOHNSON, M.D.	<i>Instructor in Surgery</i>
LUCIUS W. HOTCHKISS, M.D.	<i>Instructor in Surgery</i>
CHARLES N. DOWD, M.D.	<i>Instructor in Surgery</i>
CHARLES T. PARKER, M.D.	<i>Assistant Instructor in Operative Surgery</i>
JOHN B. WALKER, M.D.	<i>Assistant Instructor in Operative Surgery</i>
EDWARD M. FOOTE, M.D.	<i>Clinical Assistant</i>
A. S. VOSBURGH, M.D.	<i>Clinical Assistant</i>
WALTON MARTIN, M.D.	<i>Clinical Assistant</i>
CHARLES R. L. PUTNAM, M.D.	<i>Clinical Assistant</i>
D. S. D. JESSUP, M.D.	<i>Clinical Assistant</i>

Courses

1—Surgical pathology, general and regional surgery—Didactic lectures. 2 hours. Professors BULL and WEIR

Required, in the third and fourth years, of candidates for the degree of M.D.

2—Clinics in general surgery at the Vanderbilt Clinic. 2 hours. M. and Th. at 12. Professors BULL and WEIR

Required, in the third year, of candidates for the degree of M.D.

3—Minor surgery and bandaging—Practical instruction at the Vanderbilt Clinic, and the out-patient department, Roosevelt Hospital. 12 lessons for each student. Drs. ELIOT and JOHNSON

Required, in the third year, of candidates for the degree of M.D.

4—Practical instruction in minor operative surgery at the Vanderbilt Clinic. 1 lesson per week to each student for two months. Dr. ELIOT

Required, in the fourth year, of candidates for the degree of M.D.

5—Operative surgery upon the cadaver—Practical instruction to classes of 20 members each. Each student performs for himself upon the cadaver the principal operations, including the ligation of arteries, amputations, resections, and the removal of parts. Special attention is paid to operations upon the abdominal viscera. 7 to 12 lessons for each student. Drs. HARTLEY, PARKER, and WALKER

Required, in the fourth year, of candidates for the degree of M.D.

6—Practical instruction in surgery to classes of 20 members each in the wards of Bellevue Hospital and the Syms Operating Theatre, Roosevelt Hospital. 16 lessons. Drs. MARKOE, GALLAUDET, HOTCHKISS, and JOHNSON

Attendance obligatory in the fourth year.

7—Practical instruction in the surgery of children at St. Mary's Free Hospital for Children, to classes of 20 members once a week for two months for each student. Dr. DOWD

Optional for third-year students.

8—Hospital clinics :

New York Hospital.

S., 11.30 A.M. or 3.15 P.M. Professors BULL and WEIR

Th., 3 P.M., from February to June. Dr. HARTLEY

Roosevelt Hospital, Syms Operating Theatre.

S., 2.30 P.M. Professor MCBURNEY

Presbyterian Hospital.

Tu., 3 P.M. Dr. MCCOSH

Bellevue Hospital.

Tu., 2.30 P.M. Drs. GALLAUDET and MARKOE

St. Luke's Hospital.

Fri., 2.30 P.M. October to May. Drs. MARKOE and ABBE

Hospital for Ruptured and Crippled.

Fri., 8.30 A.M. Professor BULL and Dr. COLEY

St. Mary's Free Hospital for Children.

Th., 10.30 A.M. to 11.30 A.M. Dr. POORE

Attendance at the hospital clinics of Professors Bull, Weir, and McBurney is required in the third and fourth years. At the other clinics attendance is optional.

Zoölogy

HENRY FAIRFIELD OSBORN, Sc.D.....	<i>Professor</i>
* EDMUND B. WILSON, Ph.D.....	<i>Professor</i>
BASHFORD DEAN, Ph.D.....	<i>Adjunct Professor</i>
GARY N. CALKINS, Ph.D.....	<i>Tutor</i>
OLIVER S. STRONG, Ph.D.....	<i>Tutor</i>
HENRY E. CRAMPTON, Jr., A.B.....	<i>Lecturer</i>
JAMES H. MCGREGOR, A.M.....	<i>Assistant</i>

The courses in this department are mainly elective, and lead to the degrees of A.B., A.M., and Ph.D. They consist of lectures followed by practical work in the laboratory, and are arranged consecutively, advancing from instruction belonging properly to a liberal education up to the most advanced and special work.

The lecture and laboratory courses are conducted upon the fourth floor of Schermerhorn.

A—INTRODUCTORY BIOLOGICAL COURSES. Courses 1 and 2 give an introduction to the principles of animal biology as part of the general education of scientific and academic students. Course 1 is intended for students in the Schools of Applied Science as the preparation for subsequent studies in geology and palæontology. 2 is a biological course especially designed, first, for college students electing science for purposes of general culture; second, as an introduction to more advanced courses in zoölogy, botany, and physiology; and, third, as preparation for students intending to study medicine.

B—INTERMEDIATE ZOÖLOGICAL COURSE. 3, which naturally follows 2, covers a wider range, and is intended for students preparing for more advanced work in zoölogy, and for medicine, physiology, embryology, botany, palæontology, and geology. This course is the second stage of preparation for major work in zoölogy, and, under the conditions stated below, may constitute one half the requirement for a minor.

C—APPLIED ZOÖLOGY. Course 15 is intended for students in Civil Engineering and in Sanitary Science, and is not dependent upon any other courses.

D—UNIVERSITY COURSES. Courses 4 to 12, founded upon 2 and 3, may be so combined as to carry the student progressively forward to the most highly specialized study and research. (1) A major in zoölogy requires, after Courses 2 and 3 (or their equivalent), Courses 5 and 6, and the equivalent of at least one additional full-year course in addition to research. (2) For a minor, Course 3 (or its equivalent) constitutes one half the requirement in the case only of students who have not taken this course as undergraduates; the remaining half

* Absent on leave for 1898-1899. His courses will be given by other members of the department.

comprises any one of the full-year courses, 4, 5, 8, or any two of the half-year courses, 6, 7, 9, 10, 12. Where students have been able to take Course 3 as undergraduate work, a minor comprises, in addition, the equivalent of two full-year or four half-year courses.

E—UNIVERSITY BIOLOGICAL LECTURES. In addition to the regular instruction, series of lectures of a broader character are from time to time given by members of the staff and others in the general lecture-room on the first floor of Schermerhorn. In former years, Professor Edward B. Poulton, of Oxford University, and Professor C. Lloyd Morgan, of University College, Bristol, have been the invited lecturers. During the present year, Professor W. K. Brooks, of the Johns Hopkins University, will deliver a course of ten lectures upon "The Foundations of Zoölogy."

BIOLOGICAL SEMINAR. Informal discussion and criticism of biological theories in connection with the history of zoölogy. Conducted by officers of the department and graduate students. Thursday evenings, 8 P.M.

JOURNAL CLUB. One of the special features of the department is the Journal Club, open to instructors and all advanced students, and meeting every week in the Library to report upon special investigations and to present abstracts of articles of special importance in the biological journals.

Elementary Courses

1—Elementary zoölogy—A systematic and descriptive course, including a brief review of the general principles of zoölogy, especially classification, distribution, heredity, and evolution. Particular reference to extinct forms. Text-book: Packard's *Elements of Zoölogy*. Lectures and laboratory work. 3½ hours, second half-year. Professor DEAN and Dr. CALKINS

Open to students under the Faculty of Applied Science.

2—Elementary biology (zoölogy)—Introductory to morphology and physiology, and to the general principles of biology.

For the year 1898-99 this work is arranged in a longer and a shorter course, consisting of 3 and 2 exercises a week respectively. The shorter course omits the work in histology and embryology. In this course a detailed study of a series of living forms is made the basis for brief discussions of essential principles.

First Half-Year

(a)—General biology. 2 exercises a week throughout the first quarter-year. General introduction. Protoplasm and the cell. Biology of the earth-worm and the fern. Unicellular organisms: Amoeba, pleurococcus, yeast, bacteria, infusoria. Spirogyra, hydra, hydroids. Professor WILSON and Dr. CALKINS

(b)—Elementary zoölogy (invertebrates). 2 exercises a week throughout the second quarter-year. The earth-worm, lobster, crab, insect, mussel, starfish, ascidian. Professor WILSON and Dr. CALKINS

(c)—Elementary histology (longer course). 1 exercise a week throughout the half-year. General study of animal cells and tissues. Dr. CALKINS

Second Half-Year

(d)—Elementary zoölogy (vertebrates). 2 exercises a week. The lancelet, dogfish, frog, pigeon, and rabbit. In addition the main problems of evolution and heredity are briefly explained. Professors OSBORN and DEAN

(e)—Embryology of the chick (longer course). 1 exercise a week. Development of the bird and the elementary principles of general embryology. Professor DEAN

Text-books: Sedgwick and Wilson's *General Biology*; Marshall and Hurst's *Practical Zoölogy*; Osborn's *Greeks to Darwin*. Reference books: Parker's *Elementary Biology*; Thomson's *Zoölogy*; Foster and Balfour's *Elements of Embryology*.

Open to juniors and seniors. 2 or 3 lectures and 4 or 6 hours laboratory work throughout the year.

Intermediate Course

3—General zoölogy. Vertebrate and invertebrate zoölogy, anatomy, embryology, and ætiology (natural environment, terrestrial and marine faunal areas, principles of distribution).

(a)—Classification and comparative anatomy of the main living order of fishes, amphibians, reptiles, birds, and mammals. Practical study of the skeleton, integument, muscles, nerves, viscera. Professor DEAN

(b)—Embryological development of the bird, amphibian, fish, embryological technique. Professor DEAN

(c)—Comparative morphology, classification, and general zoölogy of invertebrates. Dr. CALKINS

Text-books: Wiedersheim's *Comparative Anatomy*; Parker's *Zoötomy*; Parker and Haswell's *Zoölogy*; Lang's *Comparative Anatomy*.

Open to seniors and graduates. 3 lectures and 6 hours laboratory work throughout the year. The course in elementary biology (2) is a pre-requisite for this course. Students who have previously taken only the shorter course (2—a, b, d) will be required to make up the work included in Courses 2c, 2e.

Applied Zoölogy

15—Sanitary Biology. A general course covering the main principles of zoölogy as they apply to microscopical organisms. The protozoa and other microscopic forms in their relations to odors, tastes, and appearances in drinking waters. Methods and results. Selected readings. Dr. CALKINS

Designed for students in Civil Engineering, Sanitary Science, and Chemistry—Lecture and laboratory work. 3 hours, during first half-year.

University Courses

Each of the following courses includes a lecture and one or two days of practical work.

4—Comparative neurology. An introduction to the comparative structure of the brain and nervous system of the lower and higher animals. The invertebrate nervous system is broadly treated, as throwing light upon general neurological questions as to the origin and structure of the nervous system. The vertebrate nervous system is studied more in detail, as also leading to a better comprehension of the nervous system of man. Comparative anatomy of the brain, spinal cord, and nerves in amphioxus, fishes, amphibians, reptiles, birds, and mammals. Training in the Weigert, Golgi, and other technical methods. Text-books: Edinger's *Twelve Lectures upon the Nervous System*; Gaupp's *Anatomie*

des Frosches, Abth. ii., erste Hälfte; also the works of Golgi, Cajal, Lenhossék, and others. Dr. STRONG

Open to advanced seniors and graduates. Seniors 1 morning (3 hours) a week throughout the year. Graduates 1 day a week. Lectures and laboratory work throughout the year. A shorter supplementary course may be offered the second half-year to supply a more thorough training in neurological technique.

5—Comparative zoölogy. This course completes the general systematic and morphological training begun in Courses 2 and 3. General anatomy and development of vertebrates and invertebrates, with special reference to the problems of phylogeny and classification. Training in anatomical and embryological technique. Lecture and laboratory work. 10 hours (2 days) a week. *Wieder-sheim's Grundriss der Vergleichenden Anatomie der Wirbelthiere*, Gegenbaur's *Vergleichende Anatomie*, Parker's *Zoötony*, Lang's *Comparative Anatomy*. Special works, monographs, and papers are extensively used in this course. Professors OSBORN and WILSON

6—Comparative embryology. A general comparative treatment of the earlier stages of development, with especial reference to the lower vertebrates. 6 hours (1 day) a week through the first half-year (parallel with Course 5). Hertwig's *Embryology*; Marshall's *Embryology*. Professor WILSON

7—Cellular biology. General structure and functions of the cell. 6 hours (1 day) a week through the second half-year. Hertwig, *Zelle und Gewebe*; Wilson's *Cell*. Professor WILSON

8—Mammals, living and fossil. A study of the structure, evolution, and classification of the mammalia. Lecture and laboratory courses. Reference books: Flower's *Osteology*; Flower and Lydekker's *Mammals*; Zittel's *Palæontologie*. 6 hours (1 day) a week. Professor OSBORN

The latter part of this course is given in the American Museum of Natural History.

9—Fishes, living and fossil. This course is mainly a morphological one: it includes demonstrations, and gives especial attention to the phylogenetic relations of the sub-classes and orders of fishes. Reference books: Smith Woodward's *Catalogue of Fossil Fishes*; Günther's *Study of Fishes*, and Dean's *Fishes Living and Fossil*. 1 lecture a week during second half-year. 6 hours (1 day). Professor DEAN

10—Special morphology—the Protozoa. A general treatment of the classification, morphology, and physiology of this type of organisms, and of their relations to modern theories of biology. 1 lecture a week during second half-year. Bütschli, *Protozoa in Bronn's Thierreich*. Dr. CALKINS

To alternate with 10a.

10a—Special morphology—the Bryozoa. Structure and development of the Bryozoa, with special reference to their taxonomic position. 1 lecture a week during second half-year. Dr. CALKINS

11—Advanced biology. Study of special groups of animals or of special biological problems as an introduction to original investigation. 12 hours (2 days).

12—Vertebrate organogeny. The development of the principal vertebrate organs, brain, heart, alimentary and respiratory systems, skeleton of the head,

trunk, and limbs, bearing upon problems of vertebrate phylogeny. Lecture and 4 hours laboratory work. Professors OSBORN and DEAN

Open to graduates. Alternates with course 5. To be given in 1899-1900.

13—The human brain and spinal cord. This course includes a study of both macroscopic and microscopic structure, supplemented wherever necessary by references to the structure of the nervous systems of lower forms. It naturally follows 4 but may be taken separately. A previous general knowledge of histology and of the nervous systems of some of the more typical vertebrate brains is desirable. Lectures and laboratory work 3-6 hours a week throughout the year. Reference books: The text-books of Edinger, Schäfer, Obersteiner, Déjerine, van Gehuchten, and Kölliker. Dr. STRONG

Open to a limited number of graduates and to seniors under certain conditions.

14—Experimental embryology. A survey of the work in the fields of morphogenesis and developmental mechanics. 1 hour lecture a week during the first half-year. Reference books: Wilson's *Cell*; Morgan's *Development of the Frog*; Davenport's *Experimental Morphology*. Mr. CRAMPTON

Equipment, Publication, Summer Work

LABORATORIES AND MUSEUM.—The new zoölogical laboratories on the upper floor of Schermerhorn comprise a large general undergraduate laboratory, two graduate laboratories, a laboratory for neurology, and eight rooms for private research, besides special rooms for supplies, aquaria, and preparation, and a commodious lecture room, library, and seminar room. The laboratories are well equipped with optical instruments, microtomes, and other apparatus for advanced morphological work. The teaching collections include a large series of the Mediterranean and American marine types, the injected vertebrate series of Frič and Müller, an extensive set of standard and specially prepared charts and wax models, and a variety of living animals and plants contained in fresh-water and marine aquaria.

LIBRARY.—The departmental library, a part of the University Library kept in the laboratory, the gift of Charles H. Senff, Esq., is a memorial to the late Dr. John I. Northrop, and embraces full sets of the standard biological works, including the journals and a rapidly increasing collection of memoirs and special monographs. A fund is available for the purchase of literature needed in connection with the special researches of students. Forty-three of the current biological journals are subscribed for. The Library of the New York Academy of Sciences is also housed in the building.

PUBLICATION.—The more important papers published from the laboratory are to be collected and reissued in *Zoölogical Contributions from Columbia University*. The *University Press* issues the *Columbia University Biological Series*, a number of educational volumes originally founded upon public lectures, of which four have already appeared and a fifth is in press. Another feature in advanced instruction is the connection with the biological section of the New York Academy of Sciences, which affords opportunities for public reading, discussion, and printing of scientific papers.

FIELD AND MARINE ZOOLOGY.—The summer study of marine zoölogy is provided for in the connection of the department with the Marine Biological Laboratory at Wood's Holl, Mass., including subscription for an investigator's room. The University, through Wm. E. Dodge, Esq., is also entitled to a half-year table at the Naples Zoölogical Station. Local zoölogical excursions are made in the spring and fall. For two seasons special expeditions have been sent out to the northwest coast and to Alaska, and for the last season to the Lower Nile, Africa. The Western palæontological collections in the American Museum of Natural History are open to certain advanced students of vertebrate morphology.

UNIVERSITY DEGREES

Regulations for the Degrees of Master of Arts and Doctor of Philosophy

1 Candidates for the degrees of Master of Arts and Doctor of Philosophy must hold a baccalaureate degree in arts, letters, philosophy, or science, or an engineering degree, or an equivalent of one of these from a foreign institution of learning.

Every candidate for a higher degree must present to the dean of each school in which he intends to study satisfactory evidence that he is qualified for the studies he desires to undertake.

2 Candidates for the degrees of Master of Arts and Doctor of Philosophy must pursue their studies in residence for a minimum period of one and two years, respectively.* The year spent in study for the degree of Master of Arts is credited on account of the requirement for the degree of Doctor of Philosophy. Residence at other universities may be credited to a candidate. In certain cases and by special arrangement, time exclusively devoted to investigation in the field will be credited in partial fulfilment of the time required. No degree will be conferred upon any student who has not been in residence at Columbia University for at least one year.

3 Each student who declares himself a candidate for the degrees of Master of Arts and Doctor of Philosophy, or either of them, shall, immediately after registration, designate one principal or major subject and two subordinate or minor subjects.

Candidates are expected to devote at least one-half of their time throughout their course of study to the major subject. In the case of laboratory courses this implies two days a week, or its equivalent, as determined by each department. Each minor subject is intended to occupy approximately one-fourth of the time during one year for the degree of Master of Arts, and during two years for the degree of Doctor of Philosophy.

Minor subjects may not be changed except by the permission of the dean, to be given only on the written recommendation of the heads of the departments from which and to which the change is desired; major subjects may not be changed except by a special vote of the faculty in each case.

4 The subjects from which the candidates selection must be made are :

* In practice three years of study are usually necessary to obtain the degree of Doctor of Philosophy.

UNDER THE FACULTY OF PHILOSOPHY

I. *Major Subjects* : 1. Philosophy ; 2. psychology ; 3. education ; 4. linguistics ; 5. literature ; 6. music ; 7. classical archæology and epigraphy ; 8. Greek language and literature, and, incidentally, Grecian history ; 9. Latin language and literature, and incidentally, Roman history ; and the following, *including in each case the study of both the language and the literature* : 10. English ; 11. Germanic ; 12. Romance ; 13. Sanskrit (with Pāli) and Iranian ; 14. Semitic ; 15. anthropology. Nos. 3, 5, 11, 12, 13, and 14 count each as the equivalent of a major and one minor subject.

II. *Minor Subjects* : 1. Philosophy ; 2. psychology ; 3. logic ; 4. education ; 5. anthropology ; 6. linguistics ; 7. literature ; 8. music ; 9. Greek ; 10. Greek archæology ; 11. Latin ; 12. Roman archæology ; 13. Sanskrit ; 14. Iranian ; 15. English ; 16. Anglo-Saxon ; 17. Gothic ; 18. Germanic philology ; 19. German language and literature ; 20. Scandinavian languages and literatures ; 21. Romance philology ; 22. French language and literature ; 23. Spanish language and literature ; 24. Italian language and literature ; 25. Hebrew ; 26. Arabic ; 27. Assyrian ; 28. Syriac ; 29. Ethiopic ; 30. Semitic epigraphy ; 31. Turkish ; 32. Armenian.

In his choice of subjects under this faculty, the candidate is limited by the regulation that not more than two of the three subjects may be selected from those offered by any one department. A major subject will involve attendance at lectures and seminars amounting to four or more hours weekly ; a minor subject will involve attendance of two or more hours weekly.

UNDER THE FACULTY OF POLITICAL SCIENCE

Group I.—History and political philosophy : 1. European history ; 2. American history ; 3. political philosophy.

Group II.—Public law and comparative jurisprudence : 1. Constitutional law ; 2. international law ; 3. criminal law ; 4. administrative law ; 5. comparative jurisprudence.

Group III.—Economics and social science ; 1. Political economy and finance ; 2. sociology and statistics.

In his choice of subjects under this faculty, the candidate is limited by the regulation that not more than two of the three subjects may be selected from any one of the above groups, and by the following rules :

Candidates offering European history as the major subject, must offer American history as one of the minor subjects, and *vice versa*.

Candidates offering political economy and finance as the major subject, must offer sociology and statistics as one of the minor subjects, and *vice versa*.

Candidates will not be permitted to offer constitutional law alone as the major subject for the degree of Doctor of Philosophy, but must combine with it the course on general international law or on comparative administrative law.

Candidates offering international law, or criminal law, or administrative law as the major subject, must take constitutional law as one minor subject.

Candidates will not be permitted to offer criminal law alone as the major subject for the degree of Doctor of Philosophy, but must combine with it the course on general international law.

To be recognized as a major subject for the degree of Master of Arts the courses selected must aggregate at least two hours per week throughout the year, and must also include attendance at a seminar; for a minor subject for the degree of Master of Arts, the attendance at a seminar is not required.

To be recognized as a minor subject for the degree of Doctor of Philosophy, courses must be taken, in addition to the requirements for a minor subject for the degree of Master of Arts, aggregating two hours weekly. All the courses and seminars offered in the major subject must be taken by candidates for the degree of Doctor of Philosophy.

UNDER THE FACULTY OF PURE SCIENCE

Mathematics; mechanics; astronomy; geodesy; physics; chemistry; mineralogy; geology; palæontology; lithology; zoölogy; botany; physiology; anatomy; bacteriology.

In his choice of subjects under this faculty, the candidate is limited by the regulation that no two of the subjects selected may be in any one department, unless the consent of the faculty thereto shall have first been obtained.

UNDER THE FACULTY OF APPLIED SCIENCE

Mining; metallurgy; engineering (civil, mechanical, electrical, and sanitary); architecture.

The Faculty of Applied Science requires that at least one minor subject be taken under the Faculty of Pure Science.

A minor subject may be taken in the same department as the major, but no two minors may be taken in the same department.

5 Each student will be provided by the dean of the faculty in which his major subject lies with a registration book, which, when signed at the beginning and end of every course of instruction by the officer in charge of such course, is to be preserved by the student as evidence of his attendance, and submitted to the dean of the proper faculty at the end of the year, that due credit may be given and entered on the permanent records of the institution.

6 Students desiring to be examined as candidates for any degree must make written application for such examination to the dean of the proper faculty, on blank forms provided for the purpose. All such applications must be made on or before April 1 of the academic year in which examination is desired.

7 Each candidate for the degree of Master of Arts shall present an essay on some topic previously approved by the professor in charge of his major subject. Before the candidate is admitted to examination the professor in charge of his major subject must have signified his approval of such essay. This essay must be presented not later than May 1 of the academic year in which the examination is to take place. The Faculty of Political Science requires this essay to be a paper read during the year before the seminar of which the candidate is a member.

When the essay has been approved, the candidate shall file with the Librarian of the University a legibly written or typewritten copy of it. This copy is to be written on firm, strong paper, eleven by eight and a half inches, and a space of one and a half inches on the inner margin must be left free from writing.

8 Each candidate for the degree of Doctor of Philosophy shall present a dissertation embodying the result of original investigation and research, on some topic previously approved by the professor in charge of the candidate's major subject. When such dissertation has been approved by the said professor, it shall be printed by the candidate, under the direction of the Dean of the Faculty, and one hundred and fifty copies shall be delivered to the Faculty, unless, for reasons of weight, a smaller number be accepted by special action of the University Council. On the title-page of every such dissertation shall be printed the words: "Submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy, in the Faculty of——, Columbia University."

There shall be appended to each dissertation a statement of the educational institutions that the author has attended, a list of the degrees and honors conferred upon him, as well as the titles of his previous publications.

All dissertations for the degree of Doctor of Philosophy must be submitted for approval not later than April 1 of the academic year in which examination is desired.

In case of excessive cost and delay in publishing a dissertation which has been approved by a department and accepted for publication by a reputable journal or scientific or literary association, the degree of Doctor of Philosophy may be conferred. The facts in every such case concerning the publication are to be certified to the Council by the faculty concerned.

In the Faculty of Political Science, with the consent of the dean and the professor in charge of the candidate's major subject, the examination may be held before the printed dissertation is submitted.

The Faculty of Pure Science requires the dissertation to be printed in the size and form of the annals or the memoirs of the New York Academy of Sciences, according to the nature of the subject. Final examination may be granted upon acceptance of the dissertation by the department concerned.

The Faculty of Applied Science requires the dissertation to be printed in the size and style of the School of Mines *Quarterly*, and delivered to the faculty not later than May 1 of the academic year in which the examination is to take place.

9 Every candidate for the degree of Doctor of Philosophy, must pass, besides such other examinations as the Faculty may require, an oral examination on all three subjects, and must defend his dissertation, in the presence of the entire Faculty or of so many of its members as may desire to attend. The ability to read at sight French and German, to be certified in each case by the dean of the faculty concerned, is required by all the faculties. The Faculties of Philosophy and Political Science ordinarily require also the ability to read Latin at sight, but this requirement may be waived for reasons of weight.

10 Students holding college degrees, who shall have completed with marked distinction one of the regular courses in the School of Law, the School of Medicine, the School of Mines, the School of Chemistry, the School of Engineering, or the School of Architecture, may be recommended for the degree of Master of Arts; provided that in each case the candidate shall have taken additional work, under the direction of the Faculty of Philosophy, the Faculty of

Political Science, or the Faculty of Pure Science, to the extent of a minor subject, as recognized by the faculty concerned, for not less than one academic year.

Every such candidate shall present an essay on some topic previously approved by the professor in charge of his minor subject. Before the candidate is admitted to examination the professor in charge of his minor subject must have signified his approval of such essay. This essay must be presented not later than May 1 of the academic year in which the examination is to take place. The Faculty of Political Science requires this essay to be a paper read during the year before the seminar of which the candidate is a member.

When the essay has been approved, the candidate shall file with the Librarian of the University a legibly written or typewritten copy of it. This copy is to be written on firm, strong paper, eleven by eight and a half inches, and a space of one and a half inches on the inner margin must be left free from writing.

II No student shall continue to be a candidate for the degree of Doctor of Philosophy for a longer period than three years from the time he ceases to be in residence.

Regulations for the Degree of Master of Laws

1 Any student who has satisfactorily completed the regular course of study in Columbia College, to the close of the junior year, or in some other college maintaining an equivalent curriculum (every such case of equivalency to be considered on its own merit), shall be entitled to be recommended for the degree of Master of Laws upon certificates from the Faculty of Law and the Faculty of Political Science that he has satisfactorily completed a four-years' course of study under said faculties.

2 Every candidate for the degree of Master of Laws must elect from the subjects offered by said faculties, courses aggregating, in the four years, fifty-two hours per week, and must pass satisfactory examinations upon the subjects elected; provided that not more than thirty-four hours of work may be elected either in the field of Private Law, or in that of Public Law, Social Ethics, History, and Economics.

3 Students, otherwise qualified, who have received the degree of Bachelor of Laws from this University, after pursuing the full course of study, shall be entitled, upon pursuing for an additional year a course of study of at least thirteen hours per week, under either or both of said faculties, and passing satisfactory examinations therein, to receive the degree of Master of Laws; provided that no student shall receive the degree who has not studied and passed satisfactory examinations in Comparative Constitutional Law, Administrative Law, Roman Law, International Law, and in the three courses offered on Equity,* and who has not pursued here, or elsewhere, courses of instruction satisfactory to the Faculty of Political Science in History, Social Ethics, and Economics.

4 Each faculty shall determine the order in which the subjects offered by it

* Under this provision students would be allowed, but not required, to take History of European Law, Conflict of Private Law, Law of Municipal Corporations, and the Law of Taxation.

shall be taken, and the maximum amount of work to be done therein during any one year.

5 Students from other universities, colleges, or law schools, who shall have satisfactorily completed a course of study equivalent to at least one term of thirteen hours per week in the subjects indicated in Section 2, after receiving a bachelor's degree, may be excused from the corresponding number of terms of the four years' residence required at Columbia, provided that in no case shall any one receive the degree of Master of Laws who has not spent at least four years in the study of the said subject in some university, college, or law school; and the decision whether work at another institution shall be accepted as equivalent to work at Columbia, shall rest, as far as the studies under the Faculty of Law are concerned, with the Faculty of Law, and as far as the studies under the Faculty of Political Science are concerned, with the Faculty of Political Science. But neither faculty shall admit a student from another university, college, or law school, to examination for the degree of Master of Laws without a residence of at least one year in this University.

COLUMBIA COLLEGE

The following departments are represented in the Faculty :

ASTRONOMY	HEBREW
BOTANY	HISTORY
CHEMISTRY	LATIN
ENGLISH	MATHEMATICS
ENGLISH LANGUAGE	MECHANICS
AND LITERATURE	PHILOSOPHY, ETHICS,
LITERATURE	AND PSYCHOLOGY
RHETORIC AND ENG-	PHYSICS
LISH COMPOSITION	POLITICAL ECONOMY
GEOLOGY	ROMANCE LANGUAGES
GERMANIC LANGUAGES	AND LITERATURES
AND LITERATURES	ZOOLOGY
GREEK	

Officers of the Faculty

Ex-Officio Members of the University Council

J. H. VAN AMRINGE, Ph.D., L.H.D., LL.D.....	<i>Dean</i>
H. T. PECK, Ph.D., L.H.D.....	<i>Secretary</i>

Standing Committees

COMMITTEE ON CURRICULUM AND SCHEME OF ATTENDANCE	COMMITTEE ON ADMISSIONS
Professor Van Amringe, <i>Chairman</i>	Professor Fiske, <i>Chairman</i>
" Mayo-Smith	" Peck
" Butler	" W. H. Carpenter
" Woodberry	" Cohn
" Perry	" Hallock
	" G. R. Carpenter
	" Wheeler
	" Underwood
	" Pellew
COMMITTEE ON FREE AND REDUCED TUITION	COMMITTEE ON HONORS
Professor Van Amringe, <i>Chairman</i>	Professor Peck, <i>Chairman</i>
" Price	" Hallock
" Rees	" Woodward

The Faculty

SETH LOW, LL.D., *President*

J. HOWARD VAN AMRINGE, Ph.D., L.H.D., LL.D., *Professor of Mathematics*

OGDEN N. ROOD, A.M., *Professor of Physics*

CHARLES F. CHANDLER, Ph.D., M.D., LL.D., *Professor of Chemistry*

JOHN W. BURGESS, Ph.D., LL.D., *Professor of Political Science and Constitutional Law*

RICHMOND MAYO-SMITH, Ph.D., *Professor of Political Economy and Social Science*

* THOMAS R. PRICE, LL.D., *Professor of the English Language and Literature*

JOHN KROM REES, E.M., Ph.D., *Professor of Astronomy*

H. T. PECK, Ph.D., L.H.D., *Professor of the Latin Language and Literature*

NICHOLAS MURRAY BUTLER, Ph.D., LL.D., *Professor of Philosophy and Education*

EDWIN R. A. SELIGMAN, LL.B., Ph.D., *Professor of Political Economy and Finance*

WILLIAM H. CARPENTER, Ph.D., *Professor of Germanic Philology*

ADOLPHE COHN, LL.B., A.M., *Professor of the Romance Languages and Literatures*

GEORGE EDWARD WOODBERRY, A.B., *Professor of Literature*

EDWARD DELAVAN PERRY, Ph.D., *Jay Professor of the Greek Language and Literature*

A. V. WILLIAMS JACKSON, L.H.D., Ph.D., *Professor of the Indo-Iranian Languages*

RICHARD J. H. GOTTHEIL, Ph.D., *Professor of Rabbinical Literature and the Semitic Languages*

* WILLIAM A. DUNNING, Ph.D., *Professor of History*

HENRY F. OSBORN, D.Sc., *Da Costa Professor of Biology*

JAMES F. KEMP, E.M., *Professor of Geology*

* EDMUND B. WILSON, Ph.D., *Professor of Invertebrate Zoölogy*

WILLIAM HALLOCK, Ph.D., *Adjunct Professor of Physics*

ROBERT S. WOODWARD, C.E., Ph.D., *Professor of Mechanics*

GEORGE R. CARPENTER, A.B., *Professor of Rhetoric and English Composition*

HENRY A. TODD, Ph.D., *Professor of Romance Philology*

THOMAS SCOTT FISKE, Ph.D., *Professor of Mathematics*

JAMES RIGNALL WHEELER, Ph.D., *Professor of Greek*

JAMES C. EGBERT, Jr., Ph.D., *Adjunct Professor of Latin*

JAMES H. HYSLOP, Ph.D., *Professor of Logic and Ethics*

CARLO L. SPERANZA, A.M., B. ès L., *Adjunct Professor of the Romance Languages and Literatures*

CALVIN THOMAS, A.M., *Professor of the Germanic Languages and Literatures*

WILLIAM MILLIGAN SLOANE, Ph.D., *Seth Low Professor of History*

LUCIEN M. UNDERWOOD, *Professor of Botany*

CHARLES E. PELLEW, E.M., *Adjunct Professor of Chemistry*

WATSON L. SAVAGE, A.M., M.D., *Director of the Gymnasium*

* Absent on leave.

Emeritus Officer

JOHN D. QUACKENBOS, A.M., M.D., *Emeritus Professor of Rhetoric*

For details as to other officers of instruction see departmental statements.

ADMISSION

1. Candidates for admission to the Freshman class, at its formation, must be *fifteen years* of age ; and for admission to advanced standing there will be required a corresponding increase of age ; but this rule may be dispensed with when, in the opinion of the Committee on Admissions, there are sufficient reasons to justify its relaxation.

Enrolment and Certificates

2. An applicant for admission must file with the Bursar, at least one week before the first day of the entrance examinations of each year in which he wishes to present himself for examination, a certificate from his principal instructor containing a definite statement of the subjects which he is qualified to offer for examination.

No student will be examined in June, 1899, whose name is not enrolled and whose certificate is not filed on or before Tuesday, June 6, of the same year ; nor will any student be examined in September, 1899, whose name is not enrolled and whose certificate is not filed on or before Monday, September 18.

Blank forms of the certificate required can be had upon application to the Bursar. In the case of students expecting to be examined at a distance, the names must be enrolled and the certificates filed one week earlier.

Every candidate for admission is required to pay to the Bursar a fee of five dollars (\$5) before being admitted for the first time to the entrance examinations (see article on Fees).

3. Every candidate must, before admission, present a certificate of good moral character from his last teacher, or from some citizen in good standing, and students from other institutions must bring certificates of honorable dismission.

Entrance Examinations

4. Entrance examinations will be held at the College on the day preceding the annual Commencement in June, and on the last Monday in September, and will occupy four days. No examination will be held on Commencement Day. In 1899 the examinations will begin on June 13 and September 25. There will be two examinations daily ; one session from 9.30 A.M.-12 M. ; the other from 1.30 P.M.-4 P.M.

5. The entrance examination is designed to test the ability of the candidate to undertake the course of study, and not merely to ascertain the character and the amount of his acquired knowledge. Specimen question papers, used at the entrance examinations in previous years, may be obtained from the Bursar upon application.

Requirements for Admission after January 1, 1899

6. All candidates for admission to the Freshman class must pass satisfactory examinations in the following subjects :

ENGLISH, ELEMENTARY MATHEMATICS, and LATIN,

and also in one of the following groups of subjects :

I {	GREEK FRENCH	II {	GREEK GERMAN	III {	A NATURAL SCIENCE WITH LABORATORY WORK (CHEMISTRY, PHYSICS, or BOT- ANY) and three of the following sub- jects: FRENCH, GERMAN, HISTORY, ADVANCED MATHEMATICS.

7. Students who offer both French and German at entrance are relieved of the obligation to pursue those studies in College.

8. The only subjects which may be substituted for Greek are stated in section 6.

9. Students are designated in accordance with the subjects they present at entrance, as follows :

Group I Offering Greek and French.

Group II Offering Greek and German.

Group III Offering a natural science, and three of the following : French, German, history, and advanced mathematics.

English :

10. No applicant will be accepted in English whose work is notably defective in point of spelling, grammar, idiom, punctuation, or division into paragraphs.

1. Reading and composition.—The candidate will be required to present evidence of a general knowledge of the subject-matter of the prescribed books, and to answer simple questions on the lives of their authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. The treatment of these topics is designed to show the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of a part or the whole of this test, the candidate may present an exercise book,* properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

The candidate is expected to read intelligently all the books prescribed.

He should read them as he reads other books ; he is not expected to know them minutely, but to have freshly in mind their most important parts. In preparation for this part of the requirement, it is important that the candidate shall have been instructed in the fundamental principles of rhetoric.

Candidates offering this part of the requirement as a preliminary subject should be prepared on the books prescribed for the year in which they are to take their final examination, *i. e.*, candidates who are to be examined on part 2 of the English requirement in 1900 should present themselves for examination in 1899 on part 1 of the list for 1900.

* Specific directions with regard to the preparation of such exercise books may be obtained by addressing the Department of Rhetoric, Columbia University.

The books prescribed for this part of the examination are as follows :

In 1899 : Dryden's *Palamon and Arcite* ; Pope's *Iliad*, Books I, VI, XXII, and XXIV ; The *Sir Roger de Coverley Papers* in the *Spectator* ; Goldsmith's *Vicar of Wakefield* ; Coleridge's *Ancient Mariner* ; De Quincey's *Flight of a Tartar Tribe* ; Cooper's *Last of the Mohicans* ; Lowell's *Vision of Sir Launfal* ; Hawthorne's *House of the Seven Gables*.

In 1900 : Dryden's *Palamon and Arcite* ; Pope's *Iliad*, Books I, VI, XXII, and XXIV ; The *Sir Roger de Coverley Papers* in the *Spectator* ; Goldsmith's *Vicar of Wakefield* ; Scott's *Ivanhoe* ; De Quincey's *Flight of a Tartar Tribe* ; Cooper's *Last of the Mohicans* ; Tennyson's *Princess* ; Lowell's *Vision of Sir Launfal*.

In 1901 : Shakspeare's *Merchant of Venice* ; Pope's *Iliad*, Books I, VI, XXII, and XXIV ; The *Sir Roger de Coverley Papers* in the *Spectator* ; Goldsmith's *Vicar of Wakefield* ; Coleridge's *Ancient Mariner* ; Scott's *Ivanhoe* ; Cooper's *Last of the Mohicans* ; Tennyson's *Princess* ; Lowell's *Vision of Sir Launfal* ; George Eliot's *Silas Marner*.

2. Study and composition.—This part of the examination presupposes the thorough study of each of the works named below. The examination will be upon the subject-matter, the literary form, and the logical structure. The candidate may be required, in addition, to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

In connection with the reading and study of the required books, parallel or subsidiary reading should be encouraged, and a considerable amount of English poetry should be committed to memory. The essentials of English grammar should not be neglected in preparatory study.

The books prescribed for this part of the examination are as follows :

In 1899 : Shakspeare's *Macbeth* ; Milton's *Paradise Lost*, Books I and II ; Burke's *Speech on Conciliation with America* ; Carlyle's *Essay on Burns*.

In 1900 : Shakspeare's *Macbeth* ; Milton's *Paradise Lost*, Books I and II ; Burke's *Speech on Conciliation with America* ; Macaulay's *Essays on Milton and Addison*.

In 1901 : Shakspeare's *Macbeth* ; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso* ; Burke's *Speech on Conciliation with America* ; Macaulay's *Essays on Milton and Addison*.

Elementary Mathematics :

1. Algebra : factors, common divisors and multiples, fractions, equations of the first degree with one or more unknown quantities, involution, including the binomial theorem for positive entire exponents, evolution, the doctrine of exponents, radicals and equations involving radicals, quadratic equations of one or two unknown quantities and equations solved like quadratics, ratio and proportion, and putting problems into equations.

2. Geometry : plane geometry, including the solution of simple original exercises and numerical problems.

While there is no formal examination in arithmetic as a separate requirement,

a knowledge of the metric system and the ability to reckon accurately are pre-supposed.

Latin :

1. The translation of passages selected from the portions of Cicero and Vergil specified in 1 (*c*) and (*d*) (see "preparatory course" below), with questions designed to test the candidate's understanding of the passages, and also questions on the subject-matter.
- 2*a*. The translation at sight of passages adapted to the proficiency of candidates who have studied Latin in a systematic course of at least five lessons a week for three years, the passages to be selected from Nepos, Cæsar, and Ovid, or from other simple prose and verse.
- 2*b*. The translation at sight of passages adapted to the proficiency of candidates who have studied Latin in a course of at least five lessons a week for one year beyond the requirement of 2*a*, the passages to be selected from Cicero's speeches, Vergil, and Ovid's *Metamorphoses*, or from other prose and verse of no greater difficulty.

[In connection with the passages set for translation at sight (2*a* and 2*b*), questions may be asked on ordinary forms, constructions, and idioms, and on prosody, and also questions designed to test the candidate's understanding of the passages set.]

3. A thorough examination on a prescribed portion of Cicero's speeches (for three years, beginning with 1898, the 2d, 3d, and 4th orations against Catiline), directed to testing the candidate's mastery of the forms, constructions, and idioms of the language; the test to consist in part of writing simple Latin prose, involving the use of such words, constructions, and idioms only as occur in the orations prescribed.
4. The translation into Latin prose of a passage of connected English narrative. The passage set for translation will be based upon some portion of the prose works specified in 1 (*c*) and (*d*) of "preparatory course" below, and will be limited to the subject-matter of those works.

The preparatory course, on which the examinations will be based, is defined as follows :

1. The course should include :
 - (*a*) Easy reading, included in or following a suitable introductory book, amounting to from 30 to 40 pages* ;
 - (*b*) Nepos and Cæsar, 90 to 120 pages ;
 - (*c*) Cicero, the speech on the Manilian Law, the four against Catiline, and either the speech for Archias or the Fourteenth Philippic, with additional speeches at the option of the teacher, 90 to 120 pages in all ;
 - (*d*) Vergil, *Æneid* I-VI, with additional selections from Ovid and Vergil at the option of the teacher, 6000 to 8000 verses in all.
2. Throughout the preparatory course pupils should be constantly guided in proper methods of reading, and should be trained to read the Latin understandingly, as Latin, before undertaking to render it into idiomatic English. There should also be constant practice in reading aloud, with due expression, and in hearing the language read.

* The pages of the more recent Teubner text editions are taken as a standard in this statement.

3. After the completion of the introductory lessons, a systematic study of Latin grammar, with practice in writing Latin, should be maintained throughout the course.

Greek :

1. Grammar. A thorough knowledge of the common forms, idioms, and constructions and of the general grammatical principles of Attic prose Greek, to be tested by an examination on a prescribed portion of Xenophon (for the next four years, Xenophon's *Anabasis*, Books I and II). The test is to consist in part of questions, in part of simple sentences set for translation into Greek ; it may include also translation from Greek into English.

2. Attic prose at sight. Translation at sight of a passage adapted to the proficiency of those who have read not less than 130 Teubner pages of Attic prose. The candidate is expected to show in his translation accurate knowledge of the forms and structure of the language, and an intelligent comprehension of the whole passage.

3. Homer. Ability to translate a passage from some prescribed portion of the Homeric poems (for the next two years, *Iliad*, Book I and Book II, vv. 1-493), and to answer questions designed to test the candidate's understanding of the passage, as well as questions upon poetic forms, constructions, and prosody.

4. Homer at sight. Ability to translate at sight a passage of ordinary difficulty from the *Iliad* or *Odyssey*, with the aid of the vocabulary of the less usual words.

5. Composition. Ability to translate into Attic prose a passage of connected English narrative, employing the more common words and constructions of some prescribed text. (For the next four years a candidate will be allowed his choice between a passage based on Xenophon's *Anabasis*, Books I and II, and a passage based on Xenophon's *Cyropædia*, Book I, Chaps. I to V, inclusive.)

Subjects 1 and 2 must be offered together. At the examination they will be regarded as a single subject. The same is true of subjects 3 and 4.

NOTE.—Throughout the preparatory course pupils should be constantly guided in proper methods of reading, and should be trained to read the Greek understandingly, as Greek, before attempting to render it into idiomatic English. There should also be constant practice in reading aloud, with due expression, and in hearing the language read.

French :

1. The translation at sight of ordinary nineteenth-century prose.

It is important that the passages set be rendered into clear and idiomatic English. It is believed that the power of translating at sight ordinary nineteenth-century prose can be acquired by reading not less than four hundred duodecimo pages from the works of at least three different authors. Not more than one-half of this amount ought to be from works of fiction. This number of pages is to include not only prepared work, but all sight reading done in class.

2. The translation from English into French of sentences or of a short connected passage, to test the candidate's familiarity with elementary grammar.

Elementary grammar is understood to include the conjugations of regular

verbs, of the more frequent irregular verbs, such as *aller*, *envoyer*, *tenir*, *pouvoir*, *voir*, *vouloir*, *dire*, *savoir*, *faire*, and those belonging to the classes represented by *ouvrir*, *dormir*, *connaître*, *conduire*, and *craindre*; the forms and positions of personal pronouns, the uses of other pronouns and of possessive, demonstrative, and interrogative adjectives; the inflection of nouns and adjectives for gender and number, except rare cases; the uses of articles, and the partitive constructions.

NOTE.—Pronunciation should be carefully taught and pupils be trained to some extent to hear and understand spoken French. The writing of French from dictation is recommended as a useful exercise.

German :

1. The rudiments of grammar, and especially these topics : the declension of articles, adjectives, pronouns, and such nouns as are readily classified; the conjugation of weak and of the more usual strong verbs; the commoner prepositions; the simpler uses of the modal auxiliaries; the elementary rules of syntax and word order. The proficiency of the applicant will be tested by questions on the above topics and by the translation into German of simple English sentences.
2. Translation at sight of a passage of easy prose containing no rare words. It is believed that the requisite facility can be acquired by reading not less than two hundred duodecimo pages of simple German.

NOTE.—Practice in pronunciation, in writing German from dictation, and in the use of simple German phrases in the class-room is recommended.

Advanced Mathematics :

1. Algebra : quadratic equations of one and two unknown quantities and equations solved like quadratics, ratio and proportion, variation, arithmetical and geometrical progressions, the principle of undetermined coefficients, including its application to series and partial fractions, variables and limits, convergency of series, the binomial theorem for fractional and negative exponents, logarithms, including the exponential and logarithmic series, permutations, combinations, and probability. [Equivalent of these topics as treated in the College Algebra of Wentworth or Wells.]
2. Geometry : volumetric and spherical geometry. [Equivalent of Davies's Legendre, Books VI-IX.]

Chemistry :

1. The non-metallic elements, as usually given in high-school text-books ;
2. An approved laboratory course of at least forty experiments actually performed at school by the candidate, as given in Remsen's, or Armstrong and Norton's Laboratory Manuals ; or

Physics :

1. The equivalent of Hall and Bergen's text-book of Physics ;
2. An approved laboratory course of at least forty experiments actually performed at school by the candidate ; or

Botany :

1. The equivalent of Bergen's text-book of Botany ;
2. An approved laboratory course, involving the detailed examination of not less than forty plants.

History :

1. American history (the equivalent of the matter contained in Johnston's, or Scudder's, or McMaster's text-book) ;
2. English history (the equivalent of the matter contained in Gardiner's, or Oman's, or Montgomery's text-book).

Old Requirements

II. At the entrance examinations of June and September, 1899, candidates who have taken preliminary examinations in previous years under the old requirements will be permitted to complete their examinations under the old requirements. These requirements differ from those detailed above only in elementary mathematics, Latin, Greek, French, and German, in which subjects they are as follows :—

Elementary Mathematics :

1. Arithmetic : greatest common divisor and least common multiple, common and decimal fractions, percentage, not including its commercial applications, square root, and the metric and other ordinary systems of weights and measures. Special importance is attached to accuracy and facility in calculation.
2. Algebra : factors, common divisors and multiples, fractions, equations of the first degree with one or more unknown quantities, involution, including the binomial theorem for positive entire exponents, evolution, the doctrine of exponents, radicals and equations involving radicals, and putting problems into equations.
3. Geometry : plane geometry, including the solution of simple original exercises and numerical problems.

Latin :

1. Five books of Cæsar's Commentaries on the Gallic War.
 2. Six orations of Cicero ; reading at sight of a short passage of easy Latin prose.
 3. The first six books of Vergil's *Æneid*.
 4. Prosody.
 5. Grammar and prose composition. (As to the latter, Daniel's Exercises in Latin Prose Composition, both parts, indicates the field to be covered.)
- Candidates will be required to show a fair degree of knowledge of the general history of Rome.

Greek :

1. Xenophon's *Anabasis*, Books I and II.
2. Xenophon's *Anabasis*, Books III and IV ; reading at sight of a short passage of easy Greek prose.
3. Three books of Homer's *Iliad*, with prosody.

4. Grammar and prose composition. (As to the latter, Jones's Exercises in Greek Prose Composition indicates the field to be covered.)

Candidates will be required to show a fair degree of knowledge of the general history of Greece.

French :

1. The ability to read easy French, such as Rambaud's *Histoire de la Civilisation Française*, and
2. The elements of French grammar ; or

German :

1. The ability to read easy German, such as Andersen's or Grimm's *Märchen*, and
2. The elements of German grammar.

Preliminary Examinations

12. An applicant duly enrolled, who has filed the required certificate from his principal teacher, may, at the appointed examination time in May or June of the year preceding his admission into the Freshman class, but not at any other time, be examined on certain portions of the foregoing subjects.

After January 1, 1899, the subjects which may be offered at the preliminary examination are the following :

English : Reading and composition.

Elementary Mathematics :

The preliminary examination in algebra will include and be confined to the following topics : factors, common divisors and multiples, fractions, equations of the first degree with one or more unknown quantities, evolution, the doctrine of exponents, and radicals. Candidates in Groups I and II are not allowed to offer plane geometry at the preliminary examination.

Candidates in Group III may offer both algebra and plane geometry at the preliminary examination.

Latin : Subjects 1, 2a, 3, separately or together.

Greek : Subjects 1 and 2. These subjects must be offered together. At the examination they will be regarded as a single subject.

French.

German.

History.

Chemistry.

Physics.

Botany.

After such preliminary examination, applicants will not be allowed to finish their examination on the requirements for admission until the entrance examination of the following year, without the permission of the Committee on Admissions, to be obtained during the month of June.

Advanced Entrance Examinations

13. Properly qualified students are advised to present themselves, in June or September, for examination in any of the prescribed studies of the Freshman

year, *i. e.*, Latin A or B, Greek B, Mathematics A, Rhetoric A, French A, or German A. Students passing a satisfactory examination in any of these courses will be permitted to elect in its place any higher course in the department for which the prescribed course is the only pre-requisite. For the ground covered by advanced entrance examinations in all subjects, candidates are referred to the departmental statements, or to the heads of the respective departments.

Examinations outside of New York

14. The Dean of the College is authorized to make arrangements whereby examinations may be held, when applied for, in other cities than New York.

Admission to Freshman Class upon Certificates

15. In 1898 and 1899 the Academic Diploma of the Regents of the State of New York will be accepted in lieu of entrance examinations for the subjects which it specifically covers. The Academic Equivalent Certificate will not be accepted.

Certificates of preparatory schools, whether associated with colleges or not, will not be accepted in lieu of entrance examinations.

Certificates of colleges will be accepted in lieu of entrance examinations for the ground which they cover, it being reserved to each department that so desires to decide as to the ground covered in the subject of that department.

Candidates shall take the regular entrance examinations in the subjects in which such certificates are not deemed adequate.

All certificates offered in lieu of entrance examinations must be sent to the chairman of the Committee on Admissions, at least one week before the first day of the entrance examinations, and candidates whose certificates are not accepted must take the regular examinations. The names of those candidates whose certificates are accepted in whole or in part will be posted on the Bulletin Board in College Hall at least one day in advance of the beginning of the examinations.

Report of Entrance Examinations

16. The Committee on Admissions will report to the Dean within one week after the conclusion of the entrance examinations in June, the names of those candidates that, having passed a satisfactory examination, may be admitted with or without conditions, of those that must present themselves for re-examination in September, and of those that have been rejected.

Within one week after the conclusion of the entrance examinations in September, the Committee on Admissions will report to the Dean the names of those candidates that, upon a final showing, may be admitted with or without conditions, and of those that have been rejected.

Except for reasons of weight, satisfactory to the Committee on Admissions, the results of an entrance examination will not be allowed to stand to the credit of a candidate for a longer period than sixteen months.

Admission to Advanced Standing

17. Candidates for admission from other colleges, and those desiring to be admitted to advanced standing on examination, must make application in writ-

ing to the chairman of the Committee on Admissions. Proper blanks for the purpose may be obtained from the Bursar. The application should be made, and a copy of the same filed with the Bursar, at least one week before the first day of the September entrance examinations.

The following are the regulations for the admission of students from other colleges :

1. Each applicant, if he comes from a college that gives a satisfactory course, may be admitted, on the certificate of the college that he leaves, to the second term of the Freshman class, or to the Sophomore class, or to the first term of the Junior class.
2. Each applicant for admission to the second term of the Junior class, or to the Senior class, if he comes from a college that gives a satisfactory course, may be admitted on satisfying the professor of each department in which he wishes to study, by examination or otherwise, that he is competent to pursue the course that he wishes to undertake.
3. Each applicant may be allowed to pursue his studies in each department with the most advanced class that he is found competent to enter, it being understood that, before applying for the A.B. degree, he shall bring all his studies up to the point demanded for that degree.

No applicant will be allowed to enter the Senior class as a candidate for the degree of Bachelor of Arts after October 15 in any year.

Conditions and Probation

. Students admitted conditionally to the Freshman class at the beginning of the academic year will be held under probation till the end of the first half-year.

Not later than Tuesday of the second week following the Christmas holidays, the head of each department in which students on probation attend will make to the Dean a special report of progress in the case of each such student. The Dean will, as soon as practicable and not later than the end of the half-year, decide as to each student on probation whether he shall be dropped from the roll of the College, or have his period of probation extended.

If any member of the Freshman class shall receive at the mid-year or the concluding examination, as a mark in any department, A, B, or C, this mark shall be regarded as removing any entrance condition that may be recorded against him in that department.

Any member of the Freshman class conditioned at entrance in a department in which he subsequently pursues no course, must make good that condition at a subsequent examination.

19. No student will be admitted to the Sophomore class until he shall have satisfied all his entrance conditions.

Special Students

20. Special courses of study are offered to young men, of proper age and character, who wish, without reference to any degree, to make a serious study of any

special subject, or group of subjects. Each candidate for admission to such special courses must make application in writing to the chairman of the Committee on Admissions, and show evidence of good character and of special fitness for each study that he wishes to pursue. Proper blanks for the purpose may be obtained from the Bursar. The application should be made, and a copy of the same filed with the Bursar, at least one week before the first day of the entrance examinations. Each candidate will be examined :

1. In English composition by the Professor of Rhetoric, to ascertain whether he is able to use the language correctly.

2. In each special study by the head of the department concerned, to ascertain whether he is competent to enter upon the course.

Except for reasons of weight, satisfactory to the Committee on Admissions, no one will be received as a special student who has, within ten months of the time of his application, been rejected as a regular student by the Committee on Admissions, or has, within that time, become deficient as a regular student.

Registration and Matriculation

21. All students are required to present themselves at the office of the Bursar for registration on the Wednesday, Thursday, Friday, or Saturday of the week preceding the first Monday in October of each year. Enrolment at a later date is permitted only to those who obtain the consent of the Dean, good cause for the delay having been shown. The presence of all students is required on the day immediately following the close of all vacations and recesses.

22. After filling in the blank provided for the purpose, students must present the same, with the proper fee, to the Bursar, who will issue a receipt, without which they will not be permitted to attend any of the exercises.

23. Every student holding a scholarship or receiving the benefit of free or reduced tuition must obtain from the Dean a certificate to that effect.

Fees

(See page 22)

Scholarships

(See page 23)

Examinations in Course

24. Two examinations of all the classes are held every year, one beginning on the last Monday in January, and the other on the Monday of the third week preceding Commencement. The former is called the mid-year examination ; the latter, the final examination. Any department may omit the mid-year examination in some or all of its courses for Seniors, notice of such intended omission to be sent to the Dean on or before December 1 preceding. It is the privilege of any department to announce that, in some or all of its courses, the results of the mid-year examination will be tentative only, the grades given after the final examination applying to the whole year.

25. Any student who shall have been absent from more than ten per cent. of the exercises in any course during a single half-year shall not be entitled to examination in that course.

Every student is expected and required to keep an account of his absences, and, should he exceed the limit allowed in any course, he must present to the Dean, during the week preceding the stated examination, satisfactory explanation of all his absences, or be debarred from the examination.

(a) A student absent from a mid-year or final examination in any course will be accounted deficient in that course.

(b) A student reported, at the close of the year, in grade F (see Section 27) in more than one course, or in grade F in one course and in grade D in more than two other courses, will be dropped from the roll of his class.

(c) A student dropped from the roll of his class will not be permitted to attend any of the exercises of the said class without the consent of the Dean, given for reasons of weight; but he may enter the next succeeding class and pursue the course or courses in which his deficiency exists, or, in case of elective courses and with the consent of the Dean, other course or courses equivalent thereto in time, and present himself for examination in such course or courses with that class. Upon failing with that class, in any repeated or substituted course, his name will be dropped from the roll of the College. No student dropped from the roll of his class or of the College under the provisions of this section will be accepted as a special student.

(d) No student will be promoted to the Junior class who is deficient in any course of the Freshman class; and no student will be promoted to the Senior class who is deficient in any course of the Sophomore class.

26. Examinations to enable deficient or debarred students of all classes to make good their deficiencies, are held within the two weeks immediately preceding the opening of the College in October; and in addition, for members of the Senior class only, during the first week in May.

Examinations at times other than here specified are not held except upon order of the Dean, given for reasons of weight.

Proficiency and Deficiency

27. At the close of every half-year, and after the stated examination has been held, each officer of instruction will report to the Dean a list of all the students in his several courses, classifying them in five grades, namely, A, B, C, D, F, according as their work in the course has been excellent, good, fair, poor, or a failure. Each student's record, up to his Senior year, will be transmitted to his parent or guardian by the Dean at the close of each half-year.

28. Students reported in grade F in any course will be deemed deficient in that course, and required to pass another examination in it at the time fixed for the special examination for debarred and deficient students, unless, for reasons of weight, the Dean shall otherwise direct. (See Section 26.)

29. Students reported in grade D in any course must be warned by the instructor in charge thereof that their work is so unsatisfactory that, unless improved, it may result in their being found deficient at the close of the second half-year.

30. Students reported in grade D in two or more courses will be warned by the Dean that their record is not satisfactory, and that, unless improved, it may be found necessary to require them to take the courses a second time or to substitute other courses.

31. A student reported in grade D in four or more courses at the close of the year, and not reported in grade A or B in any course, or a student reported in grade F in one course and in grade D in two other courses, will not be permitted to go on with his class without the consent of the Dean, given for reasons of weight, nor will he be accepted as a special student; but he may enter the next succeeding class.

32 (a) No scholarship, prize, or other honor will be awarded in any course or department to any student who is reported in a grade below C in any other course or department during the year in which he is a candidate for such scholarship, prize, or honor.

(b) Each student to whom honors may be awarded in any department will receive, immediately after Commencement, a certificate of such award, under the seal of the College and bearing the signature of the President and the Dean.

Honors

33. Honors are awarded at the end of the second year, the end of the third year, and at the end of the course, and are known respectively as Sophomore Honors, Junior Honors, and Final Honors.

Sophomore Honors are awarded in classics, Germanic languages and literatures, Romance languages and literatures, English, rhetoric and English composition, and mathematics.

Junior Honors are awarded in classics, Germanic languages and literatures, Romance languages and literatures, English, rhetoric and English composition, literature, mathematics, physics and chemistry, and in history.

Final Honors are awarded in classics, Germanic languages and literatures, Romance languages and literatures, English, rhetoric and English composition, literature, mathematics, physics and chemistry, zoölogy and botany, history, economics and social science, and in philosophy.

For particulars, see special announcement of the College.

Prizes

(See page 32)

Graduation Theses

34. Each candidate for graduation shall, on or before the 15th of December, with the approval of the instructor in charge of one of the courses in which he has studied, or is studying, select for thesis, or essay, some subject connected with that course, and communicate his selection to the Dean; under such guidance and with such help as the instructor may deem it right to give him, he

shall complete the thesis, or essay, and submit it to the Dean on or before April 2 of each year. This thesis, or essay, shall be judged by the head of the department in which the chosen subject lies; and the judgment shall be passed upon the merit of the thesis, or essay, both in its substance and in its style, and shall be reported in writing by the head of the department to the Dean. In his return to the Dean upon a graduation thesis the examining officer shall report :

1. A grade as to substance (27) ;
2. A grade as to style ;
3. A judgment upon its merits as a whole.

Each thesis shall contain, as appendix, a list of authorities that have been used. It shall contain at least two thousand (2000) words, unless there be special reasons for the reduced length ; and it shall be retained as the property of the College, in charge of the librarian.

If any student fail to comply with these requirements, or if his thesis, or essay, be rejected, he shall not be recommended to the Trustees for graduation.

The graduating theses must be written on firm, strong paper, eleven by eight and one-half inches in dimensions, and a space of one and one-half inches on the inner margin must be left free from writing.

Honorable Dismission

35. An honorable discharge shall always be granted to any student in good standing, who may desire to withdraw from the College ; but no student under the age of twenty-one years shall be entitled to a discharge without the assent of his parent or guardian, given in writing to the Dean.

Students are requested, in case of withdrawal during the academic year, to file a notice thereof at the office of the Bursar, who will on application provide the blank form for this purpose.

COURSE OF STUDY

The attention of students is called to the following regulations relating to the selection of studies and to the requirements for the degree of Bachelor of Arts.

36. In making out their list of electives, students are confined to the courses given as open to them in the departmental statements and in the announcement of the College. They must avoid conflicts of courses at the same hour, and for that purpose should consult the hour scheme.

Students just entering must give notice, at the time of registration, of the elective courses chosen by them.

Students in the College are required, on or before May 20, to give notice to the Dean, upon blanks to be procured at the office of the Bursar, of their choice of elective courses. Special attention is asked to this requirement, in order to avoid confusion and possible embarrassment to the student.

Freshmen are required to be in attendance at the Gymnasium on Monday and Wednesday at 11.30 ; Sophomores, at 12.30.

37. The Dean and the head of the department concerned may permit any study prescribed for the degree of Bachelor of Arts to be taken as an elective in an earlier year than that for which it is set down below.

38. The curriculum requires an elementary knowledge of *both* French and German of all candidates for the degree of Bachelor of Arts. In the case of students who offer Greek at entrance, one modern language is required for admission, and a three-hour course in the second modern language is prescribed during the Freshman year.

39. One approved course, covering a year, in a natural science, including laboratory work, must be taken by every candidate for the degree either before entrance or while in College. The entrance requirement in natural science satisfies this condition. Laboratory hours are counted for one-half the number of hours actually occupied.

40. Changes in elective courses can be made only by permission of the Dean. The like permission is necessary to entitle a student to take more than four hours of work, not including laboratory work or drawing, on the same day, and to take more than six hours of work weekly in any department.

41. Elective courses are offered subject to withdrawal if elected by fewer than three students.

42. Table of Prescribed and Elective Studies:

GROUP I—*Students entering on Greek and French*

Freshman Year

Prescribed (12 hours):	Latin A or B, or Greek B German A Mathematics A Rhetoric A
Elective (3 hours):	Chemistry I English I French I German I History A Latin A or B, or Greek B,— <i>i. e.</i> , Latin, if the student has taken Greek as his prescribed ancient language, or <i>vice versa</i> Physics I

Sophomore Year

Prescribed (7 hours):	History A, unless taken as an elective in the Freshman year Rhetoric B One of the following: Botany I, Chemistry I, or Physics I, unless the student has elected Chemistry I or Physics I in his Freshman year
Elective (9 hours):	A Sophomore may take courses designated as open to him in the departmental statements

GROUP II—*Students entering on Greek and German**Freshman Year*

- Prescribed (12 hours): Latin **A** or **B**, or Greek **B**
 French **A**
 Mathematics **A**
 Rhetoric **A**
- Elective (3 hours): Chemistry **I**
 English **I**
 German **2**
 History **A**
 Latin **A** or **B**, or Greek **B**,—*i. e.*, Latin, if the student has taken Greek as his prescribed ancient language, or *vice versa*
 Physics **I**

Sophomore Year

- Prescribed (7 hours): History **A**, unless taken as an elective in the Freshman year
 Rhetoric **B**
 One of the following: Botany **I**, Chemistry **I**, or Physics **I**, unless the student has elected Chemistry **I** or Physics **I** in his Freshman year
- Elective (9 hours): A Sophomore may take courses designated as open to him in the departmental statements

GROUP III—*Students entering on Natural Science and three of the following: French, German, History, Advanced Mathematics**Freshman Year*

- Prescribed (6 hours)*: Latin **A** or **B**
 Rhetoric **A**
- Elective (9 hours): Chemistry **I**
 English **I**
 French **I**
 German **I, 2**
 Greek **A**
 History **A**
 Mathematics **I, 2**
 Mechanical Engineering **I**
 Physics **I, 2**

Sophomore Year

- Prescribed (4 hours): History **A**, unless taken as an elective in the Freshman year
 Rhetoric **B**
- Elective (12 hours): A Sophomore may take courses designated as open to him in the departmental statements

* Students not offering French at entrance must take French **A**; those not offering German must take German **A**; those not offering advanced mathematics must take Mathematics **A**. All such students will thus have nine hours of prescribed work and six of elective work.

ALL GROUPS

Junior Year

- Prescribed (3 hours): Philosophy **A** (first half-year), unless taken as an elective in the Sophomore year ; Political Economy **A** (second half-year), unless taken as an elective in the Sophomore year ; Rhetoric **C**
- Elective (12 hours): A Junior may elect courses designated as open to him in the departmental statements

Senior Year

A Senior is required to take fifteen hours a week of elective courses, and may elect courses designated as open to him in the departmental statements. If he became a student in the College not later than the beginning of his Junior year, the first-year courses in the College of Physicians and Surgeons, the School of Law, and the Schools of Mines, Chemistry, Engineering, and Architecture are open to him, and he may, should he so desire, prepare himself for advanced standing in such schools by electing the first-year course in the school selected, in whole or in part, and counting it for the degree of Bachelor of Arts ; he may also take subjects of the second year in the Schools of Mines, Chemistry, Engineering, and Architecture, for which he may be qualified

By a judicious arrangement of his course, a student may qualify himself to enter the second year in the College of Physicians and Surgeons or the School of Law, or the third year in the Schools of Mines, Chemistry, Engineering, or Architecture, at the completion of his collegiate course for the degree of Bachelor of Arts

To students who have taken the courses noted as pre-requisites, elective courses are open in the following numbers, details of which will be found in the departmental statements of this catalogue and in the special announcement of the College :

43. To Sophomores :

Astronomy.....	Three courses	Mathematics.....	Four courses
Botany.....	One course	Mechanical Engineering..	One course
Chemistry.....	Four courses	Mechanics.....	Two courses
Civil Engineering.....	One course	Mineralogy.....	Four courses
Economics.....	Two courses	Music.....	Three courses
English Language and Literature.....	Three courses	Philosophy.....	One course
Geography.....	Two courses	Physics.....	Four courses
Geology.....	Two courses	Rhetoric and English Composition.....	One course
German.....	Four courses	Romance Languages:	
Greek.....	Three courses	French.....	Two courses
History.....	Five courses	Italian.....	Two courses
Latin.....	Three courses	Spanish.....	Two courses

44. To Juniors :

Architecture.....One course
 Astronomy.....Three courses
 Botany.....Six courses
 Chemistry.....Five courses
 Civil Engineering.....One course
 Economics.....Three courses
 Education.....One course
 English Language and Literature.....Seven courses
 Geography.....Two courses
 Geology.....Four courses
 German.....Seven courses
 Greek.....Four courses
 History.....Five courses
 Indo-Iranian.....One course
 Latin.....Five courses
 Literature.....One course

Mathematics.....Five courses
 Mechanical Engineering.....Two courses
 Mechanics.....Two courses
 Mineralogy.....Six courses
 Music.....Three courses
 Philosophy.....Three courses
 Physics.....Twelve courses
 Psychology.....Three courses
 Rhetoric and English Composition.....Three courses
 Romance Languages :
 French.....Three courses
 Italian.....Three courses
 Spanish.....Two courses
 Semitic Languages.....Eight courses
 Zoölogy.....One course

45. To Seniors :

Anthropology.....Three courses
 Architecture.....One course
 Astronomy.....Three courses
 Botany.....Eight courses
 Chemistry.....Six courses
 Civil Engineering.....One course
 Economics.....Four courses
 English Language and Literature.....Seven courses
 Geography.....Two courses
 Geology.....Four courses
 Germanic Languages :
 Dutch.....One course
 German.....Nine courses
 Germanic Philology.....One course
 Gothic.....One course
 Scandinavian.....Four courses
 Greek.....Nine courses
 History.....Seven courses
 Indo-Iranian.....Three courses
 Latin.....Eight courses
 Literature.....Two courses

Mathematics.....Six courses
 Mechanical Engineering.....Two courses
 Mechanics.....Four courses
 Mineralogy.....Six courses
 Music.....Three courses
 Philosophy, Psychology, and Education :
 Education.....Twenty-one courses
 Philosophy.....Seven courses
 Psychology.....Five courses
 Physics.....Twelve courses
 Rhetoric and English Composition.....Six courses
 Romance Languages :
 French.....Nine courses
 Italian.....Three courses
 Romance Philology.....One course
 Spanish.....Two courses
 Semitic Languages.....Ten courses
 Sociology.....Two courses
 Zoölogy.....Three courses

46. For any further information the special announcement of the College may be consulted.

REGISTER OF STUDENTS

SENIOR CLASS

Acken, George Alonzo.....	Demarest, N. J.
Baker, Charles Adkins.....	New York
Birckhead, Hugh McCulloh.....	New York
Bowman, Harold Hosford.....	Montclair, N. J.
Bradley, William Aspinwall.....	New York
Bross, William Warren.....	Montclair, N. J.
Cardozo, Ernest Abraham.....	New York
Cole, Robert Jermain.....	Passaic, N. J.
Corning, William Butler.....	Palmyra, N. Y.
Deane, Sumner.....	New York
Denzer, Sydney Weilman.....	New York
Eggena, Gustav.....	New Brighton, N. Y.
Ehret, George, Jr.....	New York
Eldert, Henry Cameron.....	Brooklyn
Ernst, Bernard Morris Leon.....	New York
Fletcher, Norton De Los Lull.....	New York
Fort, George Phelps.....	Brooklyn
Fowler, Arthur Alexander.....	New York
Giffin, Irving.....	Orange, N. J.
Graves, Horace Cutler.....	Brooklyn
Hackett, Frank Sutliff.....	New York
Harrington, Howard Sawyer.....	Jersey City, N. J.
Harrison, John Smith.....	Orange, N. J.
Hellman, George Sidney.....	New York
Hinck, Otto Helmuth.....	Montclair, N. J.
Hopkins, George Gallagher, Jr.....	Brooklyn
Hudson, Darwin Shaw.....	Astoria, N. Y.
Josephthal, Sidney Louis.....	New York
Kellogg, Walter Guest.....	Ogdensburg, N. Y.
Lesem, William Wolfe.....	New York
Lichtenstein, Oscar Richard.....	Brooklyn
Marcus, John.....	Jersey City, N. J.
Matthew, George.....	St. John, Canada
Miller, Henry Augustus.....	Portland, Oregon
Mitchel, John Purroy.....	New York
Moffatt, Miles Rees.....	Mamaroneck, N. Y.

Moran, Charles.....	New York
Mosenthal, Herman Otto.....	New York
Parsons, Geoffrey.....	Hempstead, N. Y.
Parsons, Theophilus.....	Hempstead, N. Y.
Pell, James Duane.....	New York
Ropes, Ernest Chapin.....	Brooklyn
Schuyler, Montgomery, Jr.....	New York
Senftner, Alexis Eugene.....	New York
Seward, Frederick Kimber.....	New York
Sherer, Prescottt Alfriend.....	New York
Simpson, Richard Gordon.....	Plainfield, N. J.
Smith, Davison Heermance.....	New York
Staunton, Henry Capen.....	New York
Tuttle, Charles Henry.....	New York
Van Name, Warren Mesereau.....	Tottenville, N. Y.
Wormser, Moritz.....	New York
Zinsser, Hans William.....	New York
Senior Class.....	53

JUNIOR CLASS

Alsberg, Henry Garfield.....	New York
Bingham, Lee Mansfield.....	New York
Block, Samuel John.....	New York
Bogue, Morton Griswold.....	Brooklyn
Bowman, James Floyd.....	Montclair, N. J.
Boyesen, Hjalmar Hjorth, 2d.....	Southampton, N. Y.
Brooks, Roelif Hasbrouck.....	Poughkeepsie, N. Y.
Byron, Thomas Patrick.....	Bradford, Pa.
Cane, Melville Henry.....	New York
Clapp, Walter Nicholas.....	Hempstead, N. Y.
Clark, Harrison, Jr.....	New York
Clark, William Irving, Jr.....	New York
Coan, Philip.....	New York
Coerr, Frederick Dan Huntington.....	New York
Coffee, Rudolph Isaac.....	Oakland, Cal.
Cohn, Alfred Einstein.....	New York
Davis, Michael Marks, Jr.....	New York
De Witt, William Archelaos.....	New York
Dixon, Sidney Harry.....	Unionport, N. Y.
Dixon, William Henry.....	New York
Duden, William.....	Bronxville, N. Y.
Duffield, Roy Farrell.....	Quincy, Mass.
Durham, Roger.....	New York
Edwards, James Alexander.....	New York
Elmer, Charles Howard.....	New York
Elmore, Wilbur Bruce.....	New York
Erskine, John.....	Weehawken, N. J.

Fackenthal, Joseph Diehl.....	Brooklyn
Finnigan, James Joseph.....	New York
Fiske, William Mead Lindsley, Jr.....	Brooklyn
France, Melville Jefferson.....	Brooklyn
Gallatin, Goelet.....	New York
Gardiner, Philip Parkhurst.....	Garden City, N. Y.
Giddings, Henry Starr.....	New York
Gould, John Wesley.....	Brooklyn
Gregory, William King.....	New York
Harding, William Hight, Jr.....	Brooklyn
Harrison, Henry Sydnor.....	Brooklyn
Hawks, Everett Merl.....	Tarrytown, N. Y.
Hoffman, Irving Morehouse.....	Mount Vernon, N. Y.
Howe, Joseph Parkhurst.....	New York
Hull, Robert Chipman.....	New York
Irving, Pierre Frederic.....	Glencoe, Md.
Johnson, John Barent.....	Middletown, Conn.
Kellock, Harold Anderson.....	New York
Kidde, Frank.....	Montclair, N. J.
Knapp, James Rintoul.....	New York
Leale, Loyal.....	New York
Lesinsky, Leo.....	New York
Lowenstein, Oscar.....	New York
Lum, Ralph Emerson.....	Chatham, N. J.
McCann, John Franklin, Jr.....	Brooklyn
McKenna, James John, Jr.....	New York
Maxwell, William Henry, Jr.....	Brooklyn
Meeker, Arthur Youle.....	Glen Ridge, N. J.
Mehler, Albert Joseph.....	New York
Moore, William Underhill.....	New York
Muirheid, John.....	So. Amboy, N. J.
Neugroschl, Abraham Elijah.....	New York
Newborg, Leo David.....	New York
Norman, Mark Wilbur.....	Darien, Conn.
O'Brien, Thomas Edward.....	Brooklyn
Ogden, Charles Jones.....	New York
Parker, Gordon.....	Brooklyn
Pollard, David Henry.....	Minnipauk, Conn.
Quackenbos, George Payn.....	New York
Raymond, Edward Holman, Jr.....	Summit, N. J.
Rider, Chester Crosby.....	Brookfield, Mo.
St. Clair, Harry Hull, Jr.....	New York
Schafer, Algernon Sydney.....	New York
Seguine, Edward Murray.....	Rosebank, N. Y.
Siegel, Harold Lawrence.....	Salt Lake City, Utah
Simons, Thomas.....	Yonkers, N. Y.
Slade, Harvey Shattuck.....	Yonkers, N. Y.

Smith, Alexander Godfrey.....	New York
Stoddart, Charles William.....	Yonkers, N. Y.
Strunsky, Simeon.....	New York
Turner, Wallis Smythe.....	New York
Wagner, Webster.....	Brooklyn
Walter, Edwin Joseph.....	New York
Ward, Sylvester L. Hommedieu, Jr.....	White Plains, N. Y.
Weinstein, Mayer Joseph.....	New York
Wetherhorn, Henry.....	Charleston, S. C.
Whittaker, Thomas Shirley.....	New York
Williams, John Nelson.....	Bedford, N. Y.
Wortmann, Martin.....	New York
Junior Class.....	86

SOPHOMORE CLASS

Armstrong, David.....	Rahway, N. J.
Baker, Edward Wood.....	New York
Barker, Stephen.....	New York
Baxter, Frank Edward.....	Point Pleasant, N. J.
Bensel, William Aitken.....	New York
Boehm, August Abraham.....	New York
Boese, William Henry.....	Poughkeepsie, N. Y.
Bonsall, Victor Fitch Mount.....	New York
Boone, Elliott Williams.....	New York
Bowne, Samuel Winter.....	Brooklyn
Brower, Ferrand Dodd.....	New York
Brueninghausen, Herbert Washington.....	Brooklyn
Buchler, William Paul.....	New York
Bühler, Joseph Stettenheim.....	Columbus, Ga.
Bulkley, Henry Duncan.....	New York
Cardozo, Michael Hart, Jr.....	New York
de Beaumont, Victor Ernest.....	New York
Delgado, Frederick Pearce.....	New York
Depew, Chauncey Mitchell, Jr.....	New York
de Peyster, Frederic Ashton.....	New York
Donnellan, George Laurence.....	New York
Duden, Herman.....	Yonkers, N. Y.
Durham, Knowlton.....	New York
Eastmond, Charles.....	Brooklyn
Edwards, Elisha Jay, Jr.....	Greenwich, Conn.
Elliman, Kenneth Benbow.....	Flushing, N. Y.
Ernst, Arthur Ogden.....	New York
Esser, Joseph Henry.....	Mount Vernon, N. Y.
Falconer, Bruce McLean.....	New York
Forbes, Charles Savage.....	New York
Forsch, Albert.....	New York

Frank, Milton L.....	New York
Gallatin, Frederic, Jr.....	New York
Gilsey, Gardner Ladd.....	Good Ground, N. Y.
Grace, Walter Henry.....	New York
Grannis, Pierrepont Edwards....	East Orange, N. J.
Grant, Henry Roderick.....	New York
Gray, James.....	Brooklyn
Hanson, Hans Olaf.....	New York
Haydock, Charles Edward.....	New York
Heimann, Walter James.....	New York
Heuser, Frederick William Justus.....	Brooklyn
Hogan, Richard.....	New York
Jackson, John Gillespie.....	Middletown, Conn.
Jacocks, Harold Huntington.....	New York
Keeler, George Beckworth.....	Brooklyn
Kohn, Achilles Harold.....	New York
Korn, Harold.....	New York
Krickl, Maurice.....	New York
Lederer, Allison Michael.....	Ridgewood, N. J.
Lorenz, Karl Kumler.....	Dayton, Ohio
McColgan, Joseph Thomas.....	New York
McKeon, Peter Joseph.....	New York
Mackay, Joseph Wild.....	Brooklyn
Mattice, Harold Allison.....	Westchester, N. Y.
Meyer, Arthur Southey.....	New York
Meyer, Rutherford Birchard.....	New York
Mitchell, Edward Bedinger.....	Flushing, N. Y.
Mitchell, Harry Brainerd.....	Brooklyn
Moore, James Bly.....	Nanuet, N. Y.
Mosenthal, Walter Joseph.....	New York
Nash, Stephen Payn, Jr.....	New York
Nelson, Giffard Arthur.....	Brooklyn
Palmer, Archie Wheeler.....	East Orange, N. J.
Pegram, Robert Bruce.....	New York
Platt, Stanley Burr.....	Bay Shore, N. Y.
Proctor, David Gould.....	New York
Quinn, William Robert.....	Brooklyn
Raiman, Robert Insall.....	Brooklyn
Randolph, Wassell.....	Newark, N. J.
Ringer, Paul Henry.....	New York
St. George, Albert Harrington.....	New York
Scarlett, Albert Edward.....	Mount Vernon, N. Y.
Senftner, Alfred Dwight.....	New York
Shepard, Woolsey Adams.....	New York
Small, Herbert Fedor.....	New York
Smith, John Boyce, Jr.....	New York
Southack, John William.....	New York

Spiro, Walter Jesse.....	New York
Stacey, Everett Eugene.....	New York
Stevenson, Maxwell.....	New York
Van Cise, William Marsh.....	Summit, N. J.
Walbridge, George Huntington.....	Brooklyn
Ward, Egbert.....	White Plains, N. Y.
White, Robert Hooper.....	Astoria, N. Y.
Wise, Harry Morris.....	New York
Wyman, Albert Lincoln.....	Williamsbridge, N. Y.
Sophomore Class.....	87

FRESHMAN CLASS

Adler, Harry Charles.....	New York
Atkins, George Chew.....	Bayonne, N. J.
Bancroft, James.....	Sanbornville, N. H.
Bartow, Clarence Whittemore.....	Astoria, N. Y.
Bassett, James, Jr.....	Middle Island, N. Y.
Boardman, Andrew Hunt.....	Garden City, N. Y.
Bradley, Allan Beach Arnold.....	New York
Brown, Alexander McDonald.....	Cincinnati, Ohio
Budington, Ernest Gunton.....	Brooklyn
Bullard, Oscar.....	New York
Carey, Ralph Whitney.....	New York
Carter, Jarvis Pomeroy.....	New York
Cherouny, Arthur Ernst.....	New York
Clark, Franklin Mortimer.....	Netherwood, N. J.
Cohn, Leonard A.....	New York
Colie, Edward Martin, Jr.....	East Orange, N. J.
Cowen, Harry Gabriel.....	New York
Dana, Charles Anderson.....	New York
Danton, George Henry.....	Lyndhurst, N. J.
Duden, Frederic Hermann.....	Bronxville, N. Y.
Dufourcq, Raoul Geer.....	New York
Ehrmann, Albert.....	New York
Epstein, Albert Arthur.....	New York
Erving, Shirley.....	Rye, N. Y.
Faile, Kenneth Crane.....	New York
Felsenheld, Sydney.....	New York
Fisk, Clinton Earle.....	Jersey City, N. J.
Fitch, John Knowles.....	Passaic, N. J.
Ford, Harold Edward.....	West New Brighton
Fraser, James Harold.....	New York
Friedland, Meyer.....	New York
Furnald, Royal Blackler.....	New York
Geiger, Frederic Clarence, Jr.....	East Orange, N. J.
Gerster, John Carl Arpad.....	New York

Giles, John Reston.....	New York
Glenney, Walter Lester.....	Plainfield, N. J.
Goff, John William, Jr.....	New York
Haas, George Christian Otto.....	New York
Haberman, Julius Victor.....	New York
Halsey, Francis Reboul.....	Astoria, N. Y.
Halsey, Harold Van Wyck.....	Astoria, N. Y.
Harper, James, Jr.....	Far Rockaway, N. Y.
Harris, Henry Samuel.....	New York
Harrison, Julian Collier.....	Brooklyn
Hays, Harold.....	New York
Hellman, Alfred Meyer.....	New York
Heroy, James Harold.....	New York
Hincks, Robert Beresford.....	Long Branch, N. J.
Hindley, Charles Thomas.....	New York
Hogan, Thomas.....	New York
Holland, Harry Steers.....	New York
Hopkins, Joseph Gardner.....	Brooklyn
Hunt, Perry Dexter.....	De Wittville, N. Y.
Hunting, George Hammond.....	Brooklyn
Hutton, Arthur Lefferts.....	New York
Iglehart, Charles Wheeler.....	Brooklyn
Jackson, Roland Pearce.....	New York
Jenkins, Burke Pritchard.....	New York
Jewett, Henry Seymour Elmendorf.....	New York
Johnson, Homer Sturtevant.....	Detroit, Mich.
Kaufman, Louis René.....	Brookside, N. J.
Kelly, Richard.....	New York
Kidder, Scott.....	New York
Kingsland, Richard.....	Nutley, N. J.
Langs, John Pierce.....	Niagara Falls, N. Y.
La Roche, Philip Bevan, Jr.....	New York
Laurence, Alfred Stratton.....	Stapleton, N. Y.
Lawson, William Wheelock.....	New York
Ledoux, Louis Vernon.....	New York
Lewy, Harry Meyer.....	Galveston, Texas
Lieb, Charles Christian.....	New York
Littell, Robert Jones.....	Summit, N. J.
Lockwood, Samuel Pierson.....	Yonkers, N. Y.
McClure, Arthur John.....	New York
MacDougall, Hugh Kenneth.....	Newark, N. J.
MacIntyre, Clifford Burnett.....	New York
McWhood, James Kemlo.....	Newark, N. J.
Mahan, Lyle Evans.....	New York
Mapes, Clive Spencer.....	New York
Meeks, Clarence Gardner.....	Union, N. J.
Merrell, Howard Brown.....	Upper Montclair, N. J.

Merrill, Ezra Birdette.....	Minneapolis, Minn.
Meyers, Reuben Alfonso.....	New York
Neiman, Leo.....	New York
Nesbit, William Marsiglia.....	New York
Ottenberg, Reuben.....	New York
Palmer, Louis Hooker.....	Chicago, Ill.
Parr, Harry Lilienthal.....	Yonkers, N. Y.
Pell, Walden.....	New York
Perrine, William Woodward, Jr.....	New York
Potter, Asa Perkins, Jr.....	New York
Potts, Rockhill Brevoort.....	Monmouth Beach, N. J.
Prince, Henry Starr.....	Brooklyn
Pullich, Otto, Jr.....	New York
Rhoades, Lyman, Jr.....	New York
Ropes, I. F. Chapman.....	Morristown, N. J.
Rose, Charles Reseau.....	South Amboy, N. J.
Rosenblueth, Moses.....	New York
Rytenberg, Clarkson Potter.....	New York
St. John, Theodore Raymond.....	Centre Brunswick, N. Y.
Scheuer, Alwin Joseph.....	New York
Schuster, Edward.....	New York
Seligsberg, Walter Nathan.....	New York
Sewall, Frank H.....	New York
Shoemaker, William Brock.....	New York
Smith, Deming Spencer.....	New York
Smith, Henry Kirkland.....	Ilion, N. Y.
Smithers, James.....	New York
Snyder, Francis Xavier.....	Brooklyn
Spence, Harold Tuthill.....	New York
Spencer, Joseph Whittlesey.....	New York
Spiegelberg, Sydney Lehman.....	New York
Stechert, Frederick Carl.....	Brooklyn
Steiner, Otto Davidson.....	New York
Stern, Albert Joseph.....	Bronxville, N. Y.
Strebeigh, Robert Lefferts.....	New York
Sturtevant, Horace Richmond.....	Montclair, N. J.
Taylor, Clinton Tallmadge.....	Mount Vernon, N. Y.
Tinker, Edward Larocque.....	New York
Trask, Henry Keith.....	New York
Van Kleeck, Chester Marsh.....	New York
Voss, Emanuel.....	New York
Ward, Gilbert Oakley.....	New York
Weekes, Arthur Delano, Jr.....	New York
Weeks, Charles Le Moyne.....	New York
Weisse, Henry Bethune.....	New York
Werner, Arthur.....	New York
West, Henry James.....	Garnerville, N. Y.

Willis, Reginald Satterlee.....	New York
Wilson, Stanley Kidder.....	New York
Winslow, Archibald Spiers.....	New York
Wise, Henry Edward....	New York
Wooster, Floyd Rider.....	Walden, N. Y.
Wylie, John Parr.....	New York
Wyman, Arthur Farnsworth.....	Bloomfield, N. J.
Yohannan, Malcolm.....	New York
Freshman Class.....	136

SPECIAL STUDENTS

Allen, Adrian Russell.....	Montclair, N. J.
Bateson, Richard Humphreys.....	New York
Bruce, Edward Bright.....	Yonkers, N. Y.
Burdick, Henry Hagaman.....	Syracuse, N. Y.
Caldwell, Armour.....	Brooklyn
Coe, John Laurence.....	Bay Shore, N. Y.
Collins, William Major.....	New York
Coult, Joseph Van Tile, Jr.....	Newark, N. J.
deKay, Sidney Gilder.....	New York
Duval, Hanson Rawlings.....	East Islip, N. Y.
Du Vivier, Joseph.....	New York
Enteen, Joel.....	New York
Evans, Morgan David.....	New York
Fuhrmann, Karl.....	Buffalo, N. Y.
Futter, Leon Nathan.....	Hartford, Conn.
Grant, Ulysses S., 3d.....	New York
Gulick, Herbert de Hart.....	Astoria, N. Y.
Hoadley, Harwood.....	New York
Johnson, Bradish Gaillard.....	New York
Johnson, Walter Adams.....	New York
Kelley, Robert Henry.....	Hartsdale, N. Y.
Kelly, John Jerome.....	New York
Lipsky, Louis.....	Rochester, N. Y.
Malsan, Adrian Smith.....	Whitesboro, N. Y.
Middleton, George.....	New York
Morris, Stuyvesant Fish, Jr.....	New York
Mosher, Howard H.....	New York
Mulligan, Cadwallader Roberts, Jr.....	Dover, N. J.
Shoemaker, Henry Waterman.....	New York
Shoup, Abner Hardy.....	New York
Thurnauer, Arthur Felix.....	New York
Wigham, Reginald Effingham.....	New York
Wilson, Jonathan Dunham, Jr.....	Newburgh, N. Y.
Woodford, Francis Edward.....	Portland, Me.
Special Students.....	34

SUMMARY

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Junior Class.....	86
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STUDENTS PRIMARILY REGISTERED UNDER THIS FACULTY.....	396
STUDENTS FROM OTHER FACULTIES OF THE UNI- VERSITY :	
From the Faculty of Applied Science.....	2
<hr/>	
TOTAL.....	398

SCHOOL OF LAW

Officers of the Faculty

WILLIAM A. KEENER, LL.D.....	<i>Dean, and Ex-Officio Member of the University Council</i>
GEORGE W. KIRCHWEY, A.B.....	<i>Secretary</i>
FRANCIS M. BURDICK, LL.D.....	<i>Elected Delegate to the University Council</i>

The Faculty

SETH LOW, LL.D., *President*

WILLIAM A. KEENER, LL.D.,	<i>Kent Professor of Law, and Dean</i>
FRANCIS M. BURDICK, LL.D.,	<i>Dwight Professor of Law</i>
GEORGE W. KIRCHWEY, A.B.,	<i>Nash Professor of Law</i>
GEORGE F. CANFIELD, A.B., LL.B.,	<i>Professor of Law</i>
HENRY W. HARDON, A.M., LL.B.,	<i>Professor of Law</i>

From the Faculty of Political Science

JOHN W. BURGESS, Ph.D., LL.D.,	<i>Professor of Political Science and Constitutional Law</i>
MUNROE SMITH, A.M., J.U.D.,	<i>Professor of Roman Law and Comparative Jurisprudence</i>
FRANK J. GOODNOW, A.M., LL.D.,	<i>Professor of Administrative Law</i>
* JOHN B. MOORE, A.B.,	<i>Hamilton Fish Professor of International Law and Diplomacy</i>

Lecturers

HERBERT NOBLE, A.M., LL.B.,	<i>Lecturer on Bailments, Domestic Relations, and Insurance</i>
CHARLES T. TERRY, A.B., LL.B.,	<i>Lecturer on Contracts</i>
STEWART CHAPLIN, A.B., LL.B.,	<i>Lecturer on Criminal Law</i>

PURPOSES OF THE SCHOOL

The design of the school is to prepare students for practice in any State of the Union, and in furtherance of this object the endeavor is made to give a thorough, practical, and scientific education in the principles of the law included in the following subdivisions :

* Absent on leave.

First.—The COMMON LAW, in its development and as it exists to-day in the United States, together with such statutory modifications as are generally in force in the several States.

Second.—EQUITY, in its development and as it exists to-day in the United States.

Third.—The LAW of the STATE OF NEW YORK, including PRACTICE and PLEADING under the CODE of CIVIL PROCEDURE, and the doctrines of substantive law peculiar to that State in regard to Trusts of Real and Personal Property, Powers, Perpetuities, Charitable Bequests, Accumulations, Limitation of Future Estates, Descent and Distribution, Mortgages and Contracts.

Fourth.—The PUBLIC LAW of the United States, and the Principal EUROPEAN COUNTRIES, including CONSTITUTIONAL LAW, ADMINISTRATIVE LAW, and INTERNATIONAL LAW.

Fifth.—COMPARATIVE JURISPRUDENCE, and ROMAN LAW.

COURSE OF INSTRUCTION

The course of instruction leading to the degree of Bachelor of Laws covers a minimum period of three years, in which there are offered sixty-two hours of instruction a week throughout the year. In the first year are offered fourteen hours of instruction a week ; in the second year twenty-three hours of instruction a week ; in the third year twenty-five hours of instruction a week.

The degree of Bachelor of Laws is conferred only upon students who have passed satisfactory examinations in courses covering a total of forty-two hours.

To obtain this degree in three years the student must take courses covering fourteen hours a week in each of the three years.

While no student will be allowed, without the consent of the faculty, to present himself for examination in any one year in subjects covering more than the number of hours above named, any one desiring to prolong the period of study for the degree of Bachelor of Laws beyond three years, will be permitted to reduce thereby the amount of work in any one year necessary for the degree. The faculty would strongly advise students who have not had an opportunity of thoroughly studying History, Economics, and Finance, so to prolong their course of study in order that they may avail themselves of the opportunity offered in the School of Political Science for studying these subjects. For the courses offered by the Faculty of Political Science in these subjects see pages 109 and 73.

The work selected by a student for a degree in law is subject in every case to the approval of the Dean.

First Year

ELEMENTS OF JURISPRUDENCE*—2 hours a week. Professor KEENER

EQUITY*—The Origin and Nature of Equity, Bills of Peace, Interpleader, Quia Timet, Removal of Cloud upon Title, the Jurisdiction of Equity over Torts. 2 hours a week. Professor KEENER

CONTRACTS—4 hours a week. Mr. TERRY

* The courses in Jurisprudence and Equity are together the equivalent of two hours a week through the year. The study of Equity is not begun until the completion of the course in Jurisprudence.

REAL AND PERSONAL PROPERTY—2 hours a week. Professor KIRCHWEY
TORTS—2 hours a week. Professor BURDICK

CRIMINAL LAW AND PROCEDURE—2 hours a week. Mr. CHAPLIN

COMMON LAW PLEADING AND PRACTICE*—2 hours a week. Professor HARDON

DOMESTIC RELATIONS AND LAW OF PERSONS*—2 hours a week. Mr. NOBLE

The instruction in Elements of Jurisprudence is based on Keener's Selections on Elements of Jurisprudence. The instruction in Equity is based on Keener's Cases on Equity Jurisdiction. The instruction in Contracts in both the first and second years is confined to the consideration of pure contracts, or the principles involved in the formation, performance, and discharge of contract obligations, and is based in the first year on Keener's Cases on Contracts. The instruction in Real and Personal Property in the first year is based on Digby's History of the Law of Real Property and Gray's Cases on Property; in Criminal Law and Procedure, on Beale's Cases on Criminal Law; in Torts, on Pollock on Torts and Burdick's Cases on Torts; in Common Law Pleading and Practice, on Stephen on Pleading and Ames's Cases on Pleading; in Domestic Relations and Law of Persons, on Woodruff's Cases on Domestic Relations.

Second Year

QUASI-CONTRACTS—2 hours a week. Professor KIRCHWEY

EQUITY—Trusts. 2 hours a week. Professor KEENER

REAL AND PERSONAL PROPERTY—2 hours a week. Professor KIRCHWEY

ADMINISTRATIVE LAW—2 hours a week. Professor GOODNOW

AGENCY—2 hours a week. Professor CANFIELD

BAILMENTS AND CARRIERS—2 hours a week. Mr. NOBLE

COMPARATIVE CONSTITUTIONAL LAW—3 hours a week. Professor BURGESS

INSTITUTES OF ROMAN LAW—2 hours a week. Professor SMITH

NEGOTIABLE PAPER—2 hours a week. Professor BURDICK

SALES OF PERSONAL PROPERTY—2 hours a week. Professor BURDICK

CODE PRACTICE †—2 hours a week. Professor HARDON

EQUITY PLEADING AND PRACTICE †—2 hours a week. Professor HARDON

The course in Quasi-Contracts is based on Keener's Cases on Quasi-Contracts and treats of rights arising independently of either Tort or Contract, as the recovery of money paid under duress, under compulsion of law, or under mistake; waiver of tort; the right to recover independently of contract for services rendered, and the right to recover for benefits conferred under an unenforceable contract. The instruction in Equity is based on Ames's Cases on Trusts. In

* The instruction in Common Law Pleading and Practice is given from February to June; in Domestic Relations and Law of Persons from October to February. When not otherwise stated, the course of instruction in any given subject extends through the year.

† The instruction in Code Practice is given from February to June; in Equity Pleading and Practice from October to February. When not otherwise stated the course of instruction in any given subject extends through the year. See note on preceding page.

the course on Administrative Law are considered the organization of administrative authorities ; their methods of action, and the control exercised over them by the Legislature and the Courts, particularly through the issue of the writs of mandamus, prohibition, certiorari, habeas corpus, and quo warranto. In the course on Code Practice students are required to prepare the principal papers required in practice under the Code. The course in Equity Pleading and Practice is given with special reference to the Equity Procedure of the Federal Courts of the United States, students being required to prepare the pleadings and other papers incident to a suit in equity. The instruction in Real and Personal Property is based on Gray's Cases on Property ; in Agency, on Wambaugh's Cases on Agency ; in Bailments and Carriers, on McClain's Cases on Carriers ; in Negotiable Paper, on Ames's Cases on Bills and Notes ; in Sales, on Burdick's Law of Sales and Burdick's Cases on Sales.

Third Year

CORPORATIONS—2 hours a week. Professor KEENER

EQUITY—The Jurisdiction of Equity over Contracts, including the specific performance, reformation, and rescission thereof ; Account, Equitable Conversion. 2 hours a week. Professor KEENER

EVIDENCE—2 hours a week. Professor CANFIELD

INTERNATIONAL LAW—2 hours a week. Mr. KELLY

COMPARATIVE JURISPRUDENCE—2 hours a week. Professor SMITH

PARTNERSHIP—2 hours a week. Professor BURDICK

REAL AND PERSONAL PROPERTY—2 hours a week. Professor KIRCHWEY

CODE PLEADING AND PRACTICE—2 hours a week. Professor HARDON

SURETYSHIP AND MORTGAGE—2 hours a week. Professors BURDICK and KIRCHWEY

WILLS AND ADMINISTRATION—2 hours a week. Professor HARDON

INSURANCE*—2 hours a week. Mr. NOBLE

CONFLICT OF PRIVATE LAW—I hour a week. Professor SMITH

MUNICIPAL CORPORATIONS †—2 hours a week. Professor GOODNOW

LAW OF TAXATION †—2 hours a week. Professor GOODNOW

DOCTRINES PECULIAR TO NEW YORK LAW—I hour a week. Professor CANFIELD

COURSES IN THE SECOND YEAR NOT OFFERED FOR THE DEGREE DURING THAT YEAR ARE OPEN TO THIRD-YEAR STUDENTS AS PART OF THEIR WORK FOR THE DEGREE—9 hours a week

The instruction in Equity is based on Keener's Cases on Equity Jurisdiction ; in Corporations is based on Cumming's Cases on Private Corporations ; in Evi-

* The instruction in Insurance is given from February to June. When not otherwise stated, the instruction in any given subject extends through the year.

† The instruction in Municipal Corporations is given from October to February ; in the Law of Taxation, from February to June. When not otherwise stated, the instruction in any given subject extends through the year.

dence, on Thayer's Cases on Evidence ; in Insurance, on Richards on Insurance ; in Partnership, on Ames's Cases on Partnership ; in Wills and Administration, on Gray's Cases on Property. In the course on Code Pleading, students are required to prepare pleadings, and the other principal papers necessary under the Code.

Moot Courts

Moot Courts are held during the academic year, open only to members of the second- and third-year classes.

Courses Recommended to Law Students, though not Accepted for the Degree of LL.B.

CONSTITUTIONAL HISTORY OF THE UNITED STATES—2 hours a week. Professor BURGESS

CONSTITUTIONAL HISTORY OF ENGLAND—2 hours a week. Professor OS-GOOD

HISTORICAL AND PRACTICAL POLITICAL ECONOMY—3 hours a week. Professor MAYO-SMITH

TAXATION AND FINANCE—2 hours a week. Professor SELIGMAN

RAILROAD PROBLEMS—2 hours a week, second half-year. Professor SELIGMAN

HISTORY OF POLITICAL THEORIES—2 hours a week. Professor DUNNING

Requirements for Admission

All applicants for admission to the school must be of good moral character, and must be at least eighteen years of age for admission to the work of the first-year class at its formation, and of a corresponding increase of age for admission to advanced standing.

Graduates of colleges and scientific schools in good standing, and all persons who have received the academic diploma of the Regents of the State of New York, or a certificate acceptable to the Regents in lieu thereof, are admitted without examination. Inquiries for information as to Regents' certificates should be addressed to "The University of the State of New York, Examination Department, Albany, New York."

All other applicants, whether candidates for the degree or not, must pass the examination required for admission to the Sophomore class of Columbia College, an equivalent amount of French and German being accepted as a substitute for Latin and Greek.

Advanced Standing

No applicant will be admitted to advanced standing beyond the second year except by special vote of the faculty. Applicants for admission to the second-year class must produce satisfactory evidence of having spent at least one year in some school having a required course of study of three years leading to the degree of LL.B., and must in addition thereto pass satisfactory examinations in the work of the first year.

Applicants for admission to advanced standing will be required to produce evidence of having been qualified to enter the school at the formation of the class to which they seek admission.

No certificate or diploma will be accepted in lieu of these examinations for advanced standing.

Special Students

Applicants who do not desire to become candidates for a degree may, if qualified to become candidates, pursue a special course of study approved by the Dean. Such students will be classified as special students. No one will be admitted to the school to pursue advanced work as a special student who has not passed satisfactory examinations in the contract, equity, and property courses preceding such work in point of time.

Special students must present themselves for examination in each subject selected by them at the first examination held therein, and must pass satisfactory examinations in a majority of the subjects, as a condition of continuing in the school.

Examinations

Written examinations are held at the end of each year on the subjects of that year, and on the subjects of the first and second years during the week preceding the first Monday in October.

No student is admitted to advanced standing who has failed to pass satisfactory examinations in more than four hours of work per week. Any student failing in the final examinations held at the end of the first and second years may present himself for re-examination during the week preceding the first Monday in October. No student failing a third time in any given subject will be allowed to continue in the school.

No special examinations are given.

Library

Every facility is given to students to make use of the Law Library, containing about 25,000 volumes, and of the general Library, containing about 260,000 volumes.

The Library is open for use from 8.30 A.M. to 10 P.M., every secular day in the year except holidays.

Admission to the Bar

An office clerkship is no longer required of applicants for admission to the New York Bar.

While the course of study leading to the degree of LL.B. covers a period of three years, college graduates who have been in regular attendance upon the lectures and exercises of this school for two years after receiving their college degree are entitled to apply for admission to the New York Bar at the end of their second year of study. Students who are not college graduates are entitled to apply for admission to the New York Bar at the end of their third year of regular attendance upon the lectures and exercises of this school.

In New Jersey eighteen months spent in this school is regarded as the equivalent for a like period of clerkship in a lawyer's office.

For further information address the Dean of the School of Law.

REGISTER OF STUDENTS

THIRD-YEAR CLASS

Adams, Alva Blanchard, Ph.B., <i>Yale</i>	Denver, Colo.
Arnold, Henry Newton, A.B., <i>Harvard</i>	New York
Back, William Frederic, Ph.B., <i>St. Francis Xavier</i>	Brooklyn
Bacon, Ray, A.B., <i>University of Rochester</i>	New York
Barcus, James S.....	New York
Bayles, Edwin Atkinson, A.M., <i>Columbia</i>	Orange, N. J.
Becker, Louis, Ph.B., <i>N. Y. University</i> ; A.M., <i>Columbia</i>	New York
Benedict, Elliot Stuart, A.B., <i>Harvard</i>	New York
Benedict, James Doolittle.....	Denver, Colo.
Bigham, Henry John.....	New York
Bolte, Hermann Augustus.....	New York
Boote, Charles William, A.B., <i>Columbia</i>	Yonkers, N. Y.
Brandt, Oscar Rutherford.....	New York
Carruthers, Louis John.....	Brooklyn
Cauthers, James Britton, A.B., <i>Amherst</i>	New York
Clarke, William Joseph, A.M., <i>Columbia</i>	New York
Conville, John Joseph.....	New York
Corbin, John.....	Plattsburgh, N. Y.
Costello, Richard Raymond, A.B., <i>Manhattan</i>	New York
Cowen, Thomas Bigelow, A.B., <i>Williams</i>	New York
Curtiss, Alfred Loomis, A.B., <i>Yale</i>	New York
de Forest, Johnston, A.B., <i>Yale</i>	New York
Deignan, James Herbert, A.B., <i>N. Y. City College</i>	New York
Deming, Sylvester Chittenden, A.B., <i>Williams</i>	New York
Eldridge, George Dyre, Jr., A.B., <i>Johns Hopkins</i>	New York
Ellison, Mark Hugo.....	New York
Ellison, Millard Henry, A.B., <i>N. Y. City College</i> ; A.M., <i>Columbia</i>	New York
Falck, Albert.....	New York
Farnsworth, Philo Taylor, Jr.....	Salt Lake City, Utah
Fay, Charles Jarvis, A.B., <i>Yale</i>	New York
Finney, Adelbert Howard, Ph.B., <i>University of Michigan</i>	New York
Flanagan, Edward James.....	Brooklyn
Fleischmann, Charles Russell, A.B., <i>Harvard</i>	New York
Fleischmann, Ernest Henry.....	New York
Fowler, Carl Hitchcock, A.B., B.S., <i>University of Minnesota</i> ; A.M., <i>Columbia</i> ;	Buffalo, N. Y.

Friedmann, Jacob Lawrence.....	New York
Frierson, James Nelson, B.L., <i>Hobart</i>	New York
Frost, Harry Raymond.....	Poughkeepsie, N. Y.
Gennert, Henry.....	Greenville, N. J.
Gennert, William Oscar, A.M., <i>Columbia</i>	Greenville, N. J.
Gentzlinger, Charles Frederick.....	New York
Goldberg, Lawrence, B.S., <i>N. Y. City College</i> ; A.M., <i>Columbia</i>	New York
Gros, Frederic, B.S., <i>Hanover College</i>	Delphi, Ind.
Gros, Harry Eugene, B.S., <i>Hanover College</i>	Delphi, Ind.
Grosner, Benjamin Alexander.....	New York
Hargrave, George Edward.....	New York
Hodges, William Van Derveer.....	Denver, Colo.
Hunt, Frederic Lincoln, A.B., <i>N. Y. City College</i> ; A.M., <i>Columbia</i>	New York
Israel, Isidore.....	New York
Jacobs, Ralph Ketchum.....	Brooklyn
Johnston, Henry Selden, A.B., <i>Yale</i>	New York
Kerr, John Campbell, A.B., <i>Princeton</i>	New York
Killgore, Robert Berthoud.....	New York
Kiralfy, Harry Bolossy.....	New York
Knowles, Robert.....	Portsmouth, Ohio
Knox, Herbert Allan, A.B., <i>N. Y. City College</i> ; A.M., <i>Columbia</i>	New York
Latourette, Lyman Ezra, A.B., <i>McMinnville College</i>	New York
Lawshe, Jay Earl, A.B., <i>Leland Stanford, Jr.</i>	Tacoma, Wash.
Lee, James Thomas, B.S., <i>N. Y. City College</i> ; A.M., <i>Columbia</i>	New York
Lese, Frederick, B.S., <i>N. Y. City College</i>	New York
Lesser, Joseph Mapes.....	New York
Lockhart, Leslie Scott.....	New York
Lockwood, William Andrew, A.B., <i>Williams</i>	New York
Long, Theodore.....	New York
Loomis, Andrew Gregg, A.B., <i>Bucknell</i>	Lewisburg, Pa.
McKee, Thomas Heron.....	Bozeman, Mont.
Mason, Herbert Clinton.....	Vernon Centre, N. Y.
Miller, Charles Wesley, A.B., <i>Leland Stanford, Jr.</i>	New York
Mills, Edward Kirkpatrick, A.B., <i>Princeton</i>	Morristown, N. J.
More, Taylor.....	New York
Morrow, Dwight Whitney, A.B., <i>Amherst</i>	Allegheny, Pa.
Murray, Hugh Charles, A.B., <i>N. Y. City College</i>	New York
Murtha, Eugene Isherwood, A.B., <i>St. Francis Xavier</i>	New York
Myers, Saul Sidney.....	New York
Newgass, George Washington, A.B., <i>Harvard</i>	New York
Palmer, Victor Edwin, A.B., <i>Ripon</i>	Ripon, Wis.
Paret, Walter Palmer, A.B., <i>Yale</i>	New York
Perry, Wesley Vick, A.B., <i>Princeton</i>	Russellville, Ky.
Petty, Nathan Orcutt, A.M., <i>Columbia</i>	Riverhead, N. Y.
Phelan, John Joseph, A.B., <i>Manhattan</i>	New York
Phillips, Harold Myer, B.S., <i>N. Y. City College</i>	New York
Pollak, Francis Deák, A.B., <i>Harvard</i>	New York

Pratt, William Henry, A.B., <i>Allegheny</i>	Cresson, Pa.
Proskauer, Joseph Meyer, A.B., <i>Columbia</i>	Mobile, Ala.
Ramsay, Allen Lawson.....	Perth Amboy, N. J.
Redden, William Aloysius.....	New York
Reynolds, Jackson Eli, A.B., <i>Leland Stanford, Jr.</i>	New York
Ruppert, George E.....	New York
Shattuck, Edwin Paul.....	Portland, Ore.
Snyder, John Hebard, A.B., <i>Columbia</i>	West Hoboken, N. J.
Sommerich, Otto Charles, A.B., <i>N. Y. City College</i> ; A.M., <i>Columbia</i> ;	New York
Soper, Emmet Harland, Ph.B., <i>Cornell, Ia.</i>	Emmetsburg, Ia.
Stein, Morton.....	New York
Tarler, George Cornell, M.S., <i>N. Y. City College</i> ; A.M., <i>Columbia</i> , New York	
Taylor, Benjamin Irving.....	Rye, N. Y.
Thomas, Hiram.....	Irwin, Va.
Thorne, Victor Corse, Ph.B., <i>Yale</i>	New York
Tyler, William Seymour, A.B., <i>Amherst</i>	New York
Vanderveer, George Francis, A.B., <i>Leland Stanford, Jr.</i>	Grinnell, Ia.
Vogt, Carl Vernon.....	Morristown, N. J.
Wagner, Oscar, B.S., <i>N. Y. City College</i> ; A.M., <i>Columbia</i>	New York
Walker, Roberts, A.B., <i>Amherst</i>	New York
Wheaton, Charles Frederick, A.B., <i>Columbia</i>	Yonkers, N. Y.
Wheelock, Harvey Lincoln, A.B., <i>Harvard</i>	Worcester, Mass.
Whitehead, Carle.....	Westfield, N. J.
Wood, Levi Hollingsworth, A.B., <i>Haverford</i>	Mount Kisco, N. Y.
Third-Year Class.....	106

SECOND-YEAR CLASS

Adams, Hugh White, Jr.....	Yonkers, N. Y.
Allen, William Keeler.....	New York
Anderson, James Wight, A.B., <i>Williams</i>	Springfield, Mass.
Arnegard, Knute, A.B., <i>University of North Dakota</i>	Hillsboro, N. Dak.
Bailey, James McConnell, A.B., <i>Williams</i>	Zanesville, Ohio
Baker, Edward Balthaser G.....	Watervliet, N. Y.
Barkley, Charles Brackett.....	New York
Barnard, Everett Larkin, A.B., <i>Yale</i>	New York
Baum, Joseph Maurice.....	New York
Baxter, Wyllys Pomeroy.....	New York
Bing, Alexander Max, B.S., <i>N. Y. City College</i> ; A.M., <i>Columbia</i>	New York
Blackford, Ulysses Grant, A.B., <i>Hobart</i>	Rochester, N. Y.
Bremer, Alexander Magnus.....	New York
Burlingame, Frederic Anson, A.B., <i>Harvard</i>	New York
Carr, Sterling Douglas.....	Yreka, Cal.
Cobb, William Bruce.....	Ashburnham, Mass.
Corse, Arthur William, A.B., <i>N. Y. City College</i>	New York
Corwin, Nathaniel Silleck.....	Greenport, N. Y.

Cox, Wilson Naylor.....	Terre Haute, Ind.
Cushing, Ernest Wolcott, A.B., <i>Knox College</i>	Buda, Ill.
de Forest, Henry Lockwood, A.B., <i>Yale</i>	New York
Denison, Robert Fuller, A.B., <i>Williams</i>	New York
Doob, Irving Ephram, B.S., <i>N. Y. City College</i>	New York
Drew, James Byron, A.B., <i>Curry University</i>	Allegheny, Pa.
Edwards, Charles Hebard, A.B., <i>Columbia</i>	Greenwich, Conn.
Ellenbogen, Joseph Kent.....	Allentown, Pa.
Fishel, Leo.....	Babylon, N. Y.
Hackett, Henry Seavey, A.B., <i>Harvard</i>	New York
Hall, Julian Hepworth, B.S., <i>Eureka College</i>	Athens, Ill.
Hall, Louis Harrison, B.S., <i>Amherst</i>	Naugatuck, Conn.
Hazzard, Harry Conwell, A.B., <i>Leland Stanford, Jr.</i>	San Diego, Cal.
Heller, Bernard Schmaltz, B.S., <i>N. Y. City College</i>	New York
Heydt, Charles Ernest.....	New York
Hickey, George Francis.....	Brooklyn
Holland, Forbes Joseph, A.M., <i>St. Francis Xavier</i>	New York
Isaacs, Lewis M., Ph.B., <i>N. Y. University</i>	New York
Joseph, Louis, B.S., <i>N. Y. City College</i>	New York
Kemp, William Thomas, A.B., <i>St. John's, Md.</i>	Trappe, Md.
Kresel, Isidor Jacob.....	New York
Lambrecht, Joseph William.....	New York
Ledwith, Thomas Augustin, A.B., <i>St. Francis Xavier</i>	New York
Leiter, Milton Myron, A.B., <i>Harvard</i>	Syracuse, N. Y.
Levy, Charles.....	New York
Levy, William Lipman, Ph.B., <i>N. Y. University</i> ; A.M., <i>Columbia</i> ;	New York
Lewine, James Lester, A.B., <i>Columbia</i>	New York
Logan, Joseph Clayton, A.B., <i>Roanoke College</i>	Salem, Va.
Logan, Robert Restalrig, A.B., <i>Harvard</i>	Philadelphia, Pa.
Low, William Gilman, Jr., A.B., <i>Yale</i> ; A.M., <i>Columbia</i>	Brooklyn
Lyall, Herbert James, A.B., <i>Amherst</i>	New York
McKeag, Edwin Corwin, A.M., <i>Rutgers</i>	New Brunswick, N. J.
Mackintosh, Kenneth, A.B., <i>Leland Stanford, Jr.</i>	New York
Marks, David.....	Chatham, N. Y.
Mills, Franklin Hubbell, A.B., <i>Williams</i>	Amherst, Mass.
Miner, Elijah Daniel.....	New York
Mooney, Francis Xavier.....	Oneonta, N. Y.
Morey, Arthur Thornton.....	New York
Morgan, George Wilson, A.B., <i>Oberlin</i>	New York
Mork, Seymour.....	New York
Morrison, Archie Bodine.....	New York
Murphy, William Larkin.....	Missoula, Mont.
Noll, Frederick Adam.....	Chattanooga, Tenn.
Noonan, Thomas Francis, A.M., <i>St. Francis Xavier</i>	New York
Norris, Benjamin Frank.....	Brooklyn
Planten, William Rutger John.....	Brooklyn

Platt, Mark Charles, B.S., <i>N. Y. City College</i>	New York
Platz, Julian Maximilian.....	New York
Pringle, Edward Graves, A.B., <i>University of Missouri</i>	Foristell, Mo.
Putnam, Albert William, A.B., <i>Columbia</i>	New York
Randall, Henry Thomas, A.B., <i>Columbia</i>	Orange, N. J.
Randolph, Frederick Peyton.....	New York
Reilly, Frank Paine, A.B., <i>University of Rochester</i>	Rochester, N. Y.
Richardson, Rodman.....	Flushing, N. Y.
Riley, Mathew Ignatius W., A.B., <i>St. Francis Xavier</i>	New York
Robbins, William Henry.....	Bay Shore, N. Y.
Robinson, Roy Martin, A.B., <i>University of Kansas</i>	Winfield, Kan.
Roll, John Krapp, A.B., <i>N. Y. City College</i>	New York
Rosenbaum, Sidney.....	New York
Rosenthal, Charles Meyer.....	New York
Roy, Herbert Francis, A.B., <i>Williams</i>	Troy, N. Y.
Saxe, John Godfrey, A.B., <i>McGill</i>	New York
Schurz, Herbert, A.B., <i>Harvard</i>	New York
Schwersenski, Abraham Lincoln.....	New York
Shearman, Thomas Gaskell, Jr., A.B., <i>Yale</i>	New York
Smith, Claude Crayton, A.B., <i>Emory</i>	Atlanta, Ga.
Son, Charles Anchel, A.B., <i>University of California</i> ; A.M., <i>Columbia</i> ;	New York
Spiegel, Max Jonas.....	Chicago, Ill.
Spiegelberg, Eugene Edward, A.M., <i>Columbia</i>	New York
Spingarn, Arthur Barnett, A.B., <i>Columbia</i>	New York
Starr, Reginald Henry Ellis, A.B., <i>Harvard</i>	Sewanee, Tenn.
Stern, Sydney Wilfred, A.B., <i>N. Y. City College</i>	New York
Stewart, William Adams Walker, A.B., <i>Princeton</i>	New York
Stiger, William Dexter, B.S., <i>Amherst</i>	New York
Strauss, Morris Lincoln, A.M., <i>Columbia</i>	College Point, N. Y.
Stripe, Frank Edward.....	New York
Tebbetts, Theodore Charles, A.B., <i>Harvard</i>	Lynn, Mass.
Theall, Elisha, Jr., <i>U. S. Naval Academy</i>	Brooklyn
Van Kleeck, Myndert James, B.L., B.S., <i>Hobart</i>	Seneca Falls, N. Y.
Vinton, Stallo, A.B., <i>Columbia</i>	New Rochelle, N. Y.
Walker, Clarence Frederick.....	Guttenberg, N. J.
Ware, Sedley Lynch, A.B., <i>Oxford, Eng.</i>	New York
Wattenberg, Abraham Mordecai.....	New York
Weimert, Orson John.....	Buffalo, N. Y.
Wendt, John.....	New York
Worthen, Samuel Copp, A.B., <i>Columbia</i>	Corinna, Me.
York, Frank Bernard.....	Brooklyn
Second-Year Class.....	105

FIRST-YEAR CLASS

Abbe, William, A.B., <i>Harvard</i>	Washington, D. C.
Adelson, Louis Sigmund.....	New York

Halff, Mayer Leo, A.B., <i>University of Virginia</i>	San Antonio, Tex.
Hall, Hubert Roe, A.B., <i>Eureka</i>	Athens, Ill.
Hall, Lester Walton, Ph.B., <i>Yale</i>	Kansas City, Mo.
Haussling, Gustave.....	Newark, N. J.
Hayden, John Putnam, A.B., <i>Harvard</i>	New York
Herman, Sydney Hubert, A.B., <i>N. Y. City College</i>	New York
Holtz, Charles Walter.....	New York
Huber, Henry Guido.....	New York
Huffaker, Hite Hervey.....	Louisville, Ky.
Ingraham, Daniel Phoenix, A.B., <i>Harvard</i>	New York
Jackson, Arthur Barnett, Ph.B., <i>De Pauw University</i>	Greencastle, Ind.
Josephson, Walter Stokes.....	Brooklyn
Kaiser, Emanuel Metzger, A.B., <i>N. Y. City College</i>	New York
Kayser, Harry Conrad Adolphus.....	New York
Kellogg, David Moulton, Jr.....	Oak Tree, N. J.
Kiefer, Charles Motter.....	Middletown, Pa.
Koenig, Herman Leopold.....	Newark, N. J.
Leahy, David Thomas, Jr., A.B., <i>Yale</i>	Brooklyn
Lederman, Jules Delmore, A.B., <i>N. Y. City College</i>	New York
Lee, Arthur, A.B., <i>Columbia</i>	Brooklyn
Lennehan, James Dullard, B.S., <i>Amherst</i>	Springfield, Mass.
Levy, Louis Samter, A.B., <i>Yale</i>	St. Louis, Mo.
Lovenberg, Isaac.....	Galveston, Tex.
McAnerney, Francis Bernard, A.B., <i>Georgetown University</i>	New York
McCoy, Frank, Jr., A.B., <i>Yale</i>	New York
McNaught, Roy Hyde.....	New York
Mairs, Olney Blanchard, A.B., <i>Williams</i>	Brooklyn
Manton, Martin Thomas.....	Sayville, N. Y.
Menline, Joseph Spencer, A.B., <i>N. Y. City College</i>	New York
Miller, Nelson Dorrington.....	Steubenville, Ohio
Milne, William Edwards, A.B., <i>Amherst</i>	Albany, N. Y.
Mueller, Alfred Christian.....	Davenport, Iowa
Myers, David Sydney, A.B., <i>N. Y. City College</i>	New York
Norris, Edward, A.B., <i>Yale</i>	New York
Perkins, Edward Carter, A.B., <i>Yale</i>	Hartford, Conn.
Perkins, Norton, A.B., <i>Harvard</i>	New York
Picher, Oliver Sheppard, A.B., <i>Leland Stanford, Jr.</i>	Pasadena, Cal.
Pollock, Henry William.....	New York
Ramey, Henry Marcellus, Jr.....	St. Joseph, Mo.
Raynolds, Herbert Frederick, A.B., <i>Harvard</i>	Las Vegas, New Mexico
Recknagel, Harold Sylvester, A.B., <i>Yale</i>	Brooklyn
Requa, Leonard F., Jr.....	New York
Robinson, Beverly Randolph, A.B., <i>Harvard</i>	New York
Robinson, Herman Foster, A.B., <i>Harvard</i>	New York
Robinson, Moncure, A.B., <i>Harvard</i>	New York
Rogers, John Shillito, A.B., <i>Yale</i>	New York
Rogers, Thomas Francis.....	Corning, N. Y.

Ruslander, S. Leo.....	Du Bois, Pa.
Sarle, John R.....	Coveville, N. Y.
Schreiber, George Gebner, A.B., <i>Yale</i>	Hoboken, N. J.
Schroeder, Louis Henry, A.B., <i>Illinois College</i>	Quincy, Ill.
Scott, Allan, B.S., <i>N. Y. City College</i>	New York
Seaman, Warren Clifford.....	Glenwood Landing, L. I., N. Y.
Silbiger, Samuel.....	New York
Smith, Robert Leslie.....	Woodside, N. Y.
Smith, Thomas Max, A.B., <i>Yale</i>	Keene Valley, N. Y.
Snyder, Henry George, B.S., <i>Centre College</i>	Louisa, Ky.
Southard, Charles Erastus, B.S., <i>University of Colorado</i>	Greeley, Colo.
Stayton, John William, Jr.....	Newport, Ark.
Sturgis, Guy Heydon, A.B., <i>Bowdoin</i>	New Gloucester, Me.
Symmes, William Bittle, Jr., A.B., <i>Columbia</i>	New York
Tows, Ferrars Heaton, A.B., <i>Yale</i>	New York
Trigg, William Hall.....	Boonville, Mo.
Turnbull, Robert James, Jr., A.B., <i>Yale</i>	Morristown, N. J.
Turner, Lucius D., Jr.....	Belleville, Ill.
Tyler, Cornelius Boardman, A.B., <i>Amherst</i>	Plainfield, N. J.
Ulman, Joseph Nathan, A.B., <i>Johns Hopkins University</i>	Baltimore, Md.
Van Howenberg, Henry, Jr.....	Kingston, N. Y.
Vigouroux, George Emile.....	New York
Waldron, Frank Rogers.....	Binghamton, N. Y.
Wales, Byron Roger.....	Binghamton, N. Y.
Walker, Harold, A.B., <i>Amherst</i>	New York
Wallace, Ernest Hazelwood, Ph.B., <i>Hamline University</i>	Drayton, N. Dak.
Ward, Charles Whitney.....	Boston, Mass.
Warner, Lucien Thompson, A.B., <i>Oberlin</i>	Irvington-on-Hudson, N. Y.
Waterman, Edgar Francis, A.B., <i>Trinity</i>	New York
Weidmann, Anton.....	Brooklyn
Westerfield, William Rogers, A.B., <i>Columbia</i>	New York
Whitney, William Locke, A.B., <i>Oberlin</i>	Honolulu, T. of Hawaii
Wickes, Forsyth, A.B., <i>Yale</i>	New York
Wilson, Burton Wilbur, A.B., <i>University of Nebraska</i>	Lincoln, Neb.
Wilson, George Wood, B.S., <i>Guilford College</i>	Lenoir, N. C.
Wilzin, Jerome.....	Greenville, Miss.
Woolsey, John Munro, A.B., <i>Yale</i>	Englewood, N. J.
Yuzzolino, Albert Mazzini, A.B., <i>N. Y. City College</i>	Brooklyn
First-Year Class.....	133

SPECIAL STUDENTS

Cummins, Alexander Griswold, Jr., A.B., <i>Swarthmore</i> ; A.M., <i>Columbia</i> ;	New York
Hamann, Albert William, A.B., <i>State University of Iowa</i>	Davenport, Iowa.
Larrabee, Frederic, Ph.B., <i>University of Iowa</i>	Clermont, Ia.
McLanahan, George Xavier, A.B., <i>Yale</i>	Catskill, N. Y.
Special Students.....	4
Seniors of the College.....	5

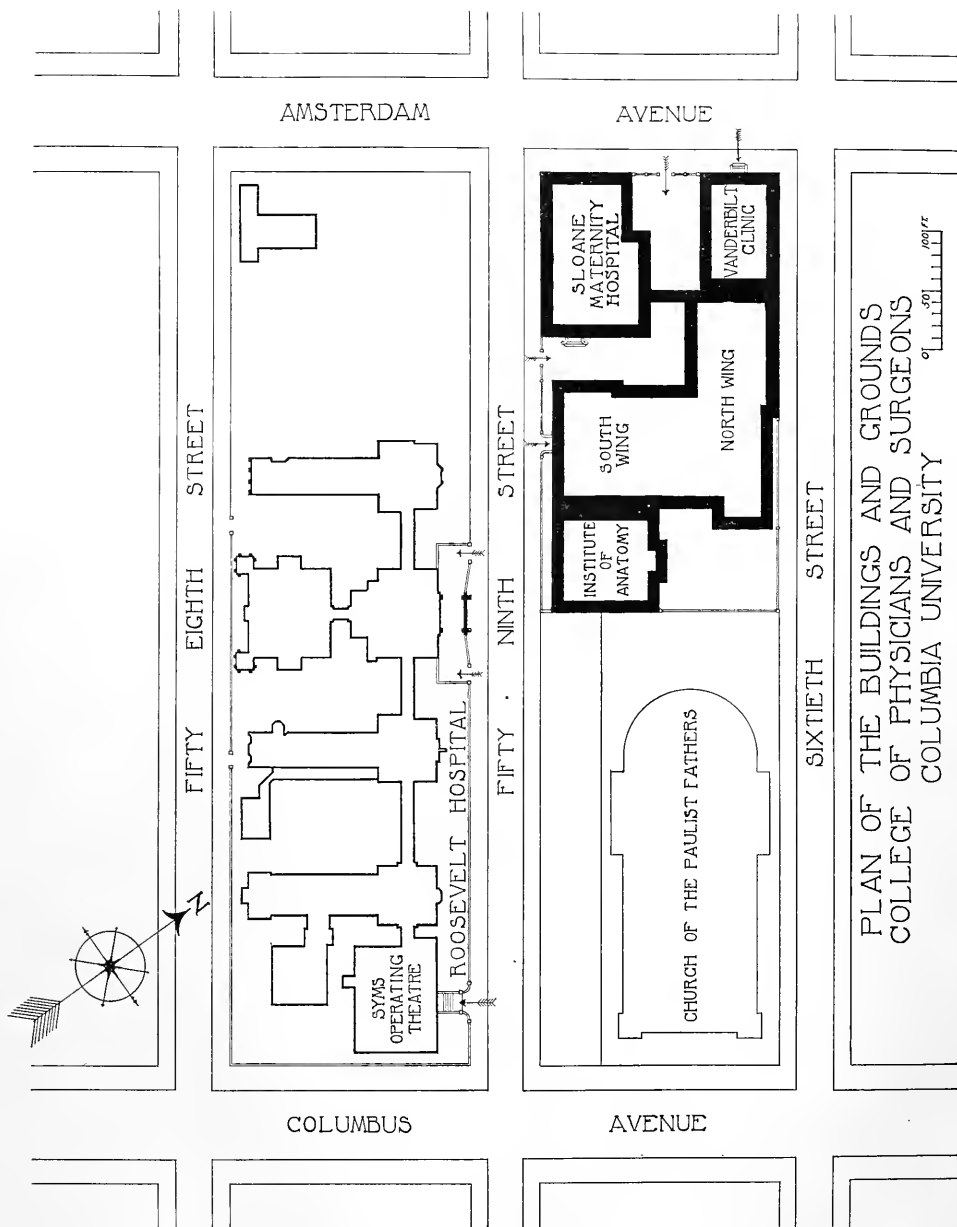
SUMMARY

Third-Year Class.....	106
Second-Year Class.....	105
First-Year Class.....	133
Special Students.....	4
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STUDENTS PRIMARILY REGISTERED UNDER THIS FACULTY,	348
STUDENTS FROM OTHER FACULTIES OF THE UNIVERSITY:	
Seniors of the College.....	5
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TOTAL.....	353

PARENTAGE OF DEGREES

Allegheny College.....	I
Amherst College.....	II
Bethel College.....	I
Bowdoin College.....	I
Brown University.....	2
Bucknell College.....	3
Centre University, Ky.....	2
Columbia College.....	23
Cornell College, Ia.....	I
Crozer Theological Seminary.....	I
Curry University.....	I
De Pauw University.....	I
Emory College.....	I
Eureka College.....	2
Georgetown University.....	2
Guilford College.....	I
Hamline University.....	I
Hanover College, Ind.....	2
Harvard University.....	22
Haverford College.....	I
Hobart College.....	3
Illinois College.....	I
Johns Hopkins University.....	2
Knox College.....	I
Leland Stanford, Jr., University.....	7
McGill University, Canada.....	I
McMinnville College, Ore.....	I
Manhattan College.....	2
Mount St. Mary's College, Md.....	I
New York City College.....	3I
New York University.....	4
Notre Dame University.....	I
Oberlin College.....	2
Oxford University, England.....	I

Princeton University	5
Ripon College.....	I
Roanoke College.....	I
Rutgers College.....	I
St. Francis Xavier College.....	8
St. John's College, Md.....	I
Seton Hall College.....	I
Swarthmore College.....	I
Trinity College, Conn.....	I
University of California.....	2
University of Colorado.....	I
University of Iowa.....	2
University of Kansas.....	I
University of Michigan	2
University of Minnesota.....	I
University of Missouri.....	I
University of Nebraska	I
University of North Dakota.....	I
University of Ohio.....	I
University of Rochester.....	2
University of Virginia.....	I
U. S. Naval Academy.....	I
Wabash College.....	I
Wesleyan University, Conn.....	I
Williams College.....	II
Yale University.....	28
60 Colleges and Universities. Total Graduates.....	216



PLAN OF THE BUILDINGS AND GROUNDS
COLLEGE OF PHYSICIANS AND SURGEONS
COLUMBIA UNIVERSITY

SCHOOL OF MEDICINE

COLLEGE OF PHYSICIANS AND SURGEONS

The instruction in medicine is given under the following departments:

ANATOMY	NEUROLOGY
CHEMISTRY, GENERAL	OBSTETRICS
CHEMISTRY, PHYSIOLOGICAL	OPHTHALMOLOGY
DERMATOLOGY	OTOLOGY
DISEASES OF CHILDREN	PATHOLOGY
GENITO-URINARY AND VENE-	PHYSICS
REAL DISEASES	PHYSIOLOGY
GYNECOLOGY	PRACTICE OF MEDICINE
LARYNGOLOGY	SURGERY
MATERIA MEDICA AND THERA-	
PEUTICS	

Officers of the Faculty

JAMES W. McLANE, M.D.	<i>Dean and Ex-Officio Member of the University Council</i>
JOHN G. CURTIS, M.D.	<i>Elected Delegate to the University Council</i>
EDWIN B. CRAGIN, M.D.	<i>Secretary</i>

The Faculty

SETH LOW, LL.D., *President*

FRANCIS DELAFIELD, M.D.,	<i>Professor of the Practice of Medicine</i>
JOHN G. CURTIS, M.D.,	<i>Professor of Physiology</i>
GEORGE M. TUTTLE, M.D.,	<i>Professor of Gynecology</i>
GEORGE L. PEABODY, M.D.,	<i>Professor of Materia Medica and Therapeutics</i>
WILLIAM T. BULL, M.D.,	<i>Professor of Surgery</i>
M. ALLEN STARR, M.D.,	<i>Professor of Diseases of the Mind and Nervous System</i>
GEORGE S. HUNTINGTON, M.D.,	<i>Professor of Anatomy</i>
ROBERT F. WEIR, M.D.,	<i>Professor of Surgery</i>
T. MITCHELL PRUDDEN, M.D.,	<i>Professor of Pathology, Director of the Lab- oratories of Histology, Pathology, and Bacteriology</i>
EDWIN B. CRAGIN, M.D.,	<i>Lecturer in Obstetrics</i>

NOTE.—For details as to other officers of instruction, see departmental state-
ments.

GENERAL STATEMENT

The College of Physicians and Surgeons, on July 1, 1891, became, under the authority of the Legislature, a part of Columbia University. This merger, which makes the medical department in a complete sense an integral part of the University system, largely increases the usefulness of the Medical School, favors the thoroughness of scientific medical education, and promotes scientific research. The accessions to the teaching force, notably in the Departments of Anatomy and Pathology and in the physiological and other laboratories, permit the realization, to a degree previously quite impossible, of the great opportunities for instruction and research afforded by the excellence of the dissecting-rooms, the laboratories, and apparatus.

The college occupies a group of buildings, given by the late William H. Vanderbilt and members of his family, and by William D. Sloane, Esq., which stand upon thirty contiguous lots of land, bounded on the south, west, and north by Fifty-ninth Street, Tenth Avenue, and Sixtieth Street, respectively, and lying immediately opposite to the Roosevelt Hospital.

The other departments of Columbia University are reached by either the Amsterdam Avenue or the Boulevard surface cars, which pass the grounds on Morningside Heights.

The station, which is a few steps from the college, at the corner of Fifty-ninth Street and Ninth Avenue, is the point of union of the Ninth Avenue and Sixth Avenue Elevated Railroads, by either of which the buildings are immediately accessible from the north and south.

The electric cars of the Metropolitan Traction Co. move east and west along Fifty-ninth Street, pass the site of the college, and place it in easy communication with the Second and Third Avenue Elevated Railroads, and with the numerous lines of surface cars which reach Fifty-ninth Street from the north and south. All important points in the city, including the various hospitals, can thus readily be reached from the college without a walk of any length.

The buildings appertaining to the college are three in number :

THE COLLEGE BUILDING PROPER ;

THE VANDERBILT CLINIC ;

THE SLOANE MATERNITY HOSPITAL.

THE COLLEGE BUILDING PROPER has been designed to facilitate that combination of didactic instruction with laboratory work which is essential to a modern scientific training. It consists of a *southern portion*, measuring 140 feet by 43 feet, extending along Fifty-ninth Street ; of a *northern portion*, 96 feet by 43 feet, extending along Sixtieth Street ; and of a *middle portion*, 96 feet by 55 feet, connecting the other two. The total area covered is therefore 15,428 square feet. Each story above the basement of the northern and southern portions has been built "in the clear," and contains neither brick partitions nor iron columns. It is therefore possible to remodel the interior at any future time.

Through the recent generous gift of Messrs. Cornelius, William K., Frederick W., and George W. Vanderbilt, there has been rendered possible an

important enlargement of the college building proper, to provide additional facilities for anatomical teaching and for practical work in Pathology and Bacteriology.

The south wing of the college has been extended on Fifty-ninth Street eastward for 55 feet, the depth of the new wing being 80 feet. This new building is four stories high and is devoted to the Department of Anatomy. The basement contains the cast and modelling rooms, the corrosion room, and the reference osteological collection. The first and second stories are occupied by the Museum of Human and Comparative Morphology, the first floor being provided with a gallery, greatly increasing the available floor space.

The Morphological Research Laboratory occupies the third story of the new anatomical building, affording ample accommodations for the researches of the officers of the department and for post-graduate students.

The fourth floor forms an extension to the original dissecting-room. The new class-room for practical anatomy will accommodate over four hundred students, and by means of the artificial cooling plant work can be carried on without regard to the outside temperature.

The north end of the fourth floor is occupied by a small auditorium for anatomical demonstrations. It has overhead light and an arrangement of seats carefully planned, so as to bring each member of the sections close to the object of the demonstration.

The two upper floors of the new building over the Vanderbilt Clinic extension are made continuous with the space formerly occupied by the Department of Pathology, and the whole is devoted to the work of this department in Pathology, Bacteriology, Clinical Microscopy, Normal Histology, and Photography, and to such an extension of these as the plans of the new four-years' course require. There is on the fifth floor in addition to the large class laboratories a series of larger and smaller rooms for advanced students and research work in Bacteriology. On the fourth floor there is a large laboratory for special advanced students in Pathology and for research, a series of private rooms for the instructors, and a departmental library.

Vanderbilt Clinic

The new VANDERBILT CLINIC extends from the corner of Sixtieth Street and Tenth Avenue to the north wing of the college building, covering an area 180 by 60 feet, and is three stories in height. It is twice the size of the original building.

This institution was built and endowed by the sons of the late William H. Vanderbilt as a memorial of their father. It supplies a fully equipped dispensary service for the sick poor. It also affords ample material for extended practical clinical instruction in the various departments of medicine and surgery, as the professors, with their clinical assistants, have the entire charge of its practice.

During the year 1897, 53,413 patients were treated, making 168,253 visits to the clinic.

The original building having proved inadequate to accommodate these large numbers, the sons of Mr. Vanderbilt have recently (1895) united in an additional

gift of \$350,000, enabling the size of the building to be doubled. In the enlarged building, ample space is provided, not only for the reception of the constantly increasing number of patients, but also for the instruction of the students in small classes in each of the eleven different departments. Two large dark rooms with twenty stalls are provided for instruction in the use of the ophthalmoscope and laryngoscope. Each department has a room for the practical instruction of small groups of students, in addition to the rooms devoted to the treatment of patients. There is a large theatre for the clinical lectures, accommodating about four hundred students, and a smaller lecture hall where one hundred can be seated.

All modern appliances for the treatment of diseases have been introduced, so that students can learn thoroughly the use of all methods in each department, and thus can acquire a practical knowledge of all the "specialties" in medicine.

Sloane Maternity Hospital

The SLOANE MATERNITY HOSPITAL is situated upon the college grounds. The obstetric service is under the exclusive direction of the Lecturer on Obstetrics in the college, the Instructor in Obstetrics being the Resident Physician. The hospital has been greatly enlarged during the last year, so as to furnish seventy-two additional beds for patients, and increased accommodation for the House Staff, students, and nurses. The operating-room will accommodate fifty-one students.

REQUIREMENTS FOR ADMISSION

No entrance examinations are conducted at this college, but all students who matriculate with the intention of becoming candidates for the degree of Doctor of Medicine must present a *medical-student certificate from the Regents of the University of the State of New York*.

For information concerning the requirements for obtaining this medical-student certificate, address, *Examination Department, University of the State of New York, Albany, N. Y.*

CURRICULUM

The work required of the students at this college who are candidates for the degree of M.D. covers four years of study according to the curriculum set forth below in outline.

The right is reserved to make amendments to this curriculum as experience may prove necessary.

Programmes of the exercises, giving time and place, will be distributed among the matriculants at the beginning of each annual session.

The following statement is drawn up from the point of view of the student, and shows what is expected from each matriculant taking the regular curriculum.

In all subjects which are not completed in a single year the instruction offered to a given student will be different each year.

The regular instruction for 1898-9 began on Monday, October 3, 1898, at 11 A.M. Commencement will be on Wednesday, June 14, 1899.

Every student intending to be a candidate for the degree of M.D. must register his name in person within the first seven working days of each session.

Students who have pursued elsewhere courses in Physics and General Chemistry substantially equivalent to those given at this college, may be exempted from the work in those subjects on presentation of satisfactory certificates or after satisfactory examination.

First Year

PHYSICS.

Lectures, combined with demonstrations, 3 a week for one half the year.

Laboratory Work, 3-hour exercises once a week for one half the year.

GENERAL CHEMISTRY.

Lectures, 2 a week.

Conferences, 2 a week for one half the year.

Laboratory Work, 2-hour exercises twice a week for one half the year.

ANATOMY, begun.

Demonstrations to sections, 4 a week for each student.

Laboratory Work in dissection, 18 to 20 hours a week, for from 3 to 5 periods of 4 weeks each.

NORMAL HISTOLOGY, begun.

Laboratory Work, 2-hour exercises 3 times a week for one half the year.

PHYSIOLOGY, begun.

Lectures combined with demonstrations, 3 a week.

Demonstrations to sections, from 1 to 3 a week for each student.

EXAMINATIONS upon the work of the first year.

Second Year

ANATOMY, finished.

Lectures combined with demonstrations, 3 a week.

Demonstrations to sections, 4 a week for each student for one half the year ; 5 a week for each student for one half the year.

Laboratory Work in dissection, 10 to 12 hours a week, for from 1 to 3 periods of 4 weeks each.

NORMAL HISTOLOGY, finished.

Laboratory Work, 2-hour exercises twice a week for one half the year.

PHYSIOLOGY, finished.

Lectures combined with demonstrations, 3 a week.

Demonstrations to sections, from 1 to 3 a week for each student.

PHYSIOLOGICAL CHEMISTRY.

Lectures with occasional demonstrations, 1 a week for one half the year for each student.

Conferences combined with *Recitations*, 1 a week for one half the year.

Laboratory Work, 2-hour exercises 3 times a week for one half the year.

PATHOLOGICAL ANATOMY, begun ; the technique of autopsies.

Attendance at Autopsies, with practical instruction, once a week for 8 weeks.

BACTERIOLOGY.

Laboratory Work, 2-hour exercises 3 times a week for one fourth the year.

MATERIA MEDICA AND THERAPEUTICS, begun.

Lectures, 3 hours a week.

OBSTETRICS AND GYNECOLOGY, begun.

Recitations combined with demonstrations to sections, 1 a week for each student.

EXAMINATIONS upon the work of the second year.

Third Year

MATERIA MEDICA AND THERAPEUTICS, finished.

Lectures, 3 a week.

PATHOLOGICAL ANATOMY, finished.

Demonstrations to sections, 2 a week for each student.

GENERAL PATHOLOGY AND PATHOLOGICAL HISTOLOGY.

Laboratory Work, 2-hour exercises 3 times a week for one half the year.

THE PRACTICE OF MEDICINE, begun.

Lectures, 3 a week.

Clinical Lectures at the Vanderbilt Clinic, once a week.

Clinical Lectures or Instruction in the wards at the Roosevelt Hospital, once a week ; at the New York Hospital, once a week for one half the year.

Practical Clinical Instruction to sections in physical diagnosis, for each student, twice a week for 16 weeks.

DISEASES OF THE MIND AND NERVOUS SYSTEM, begun.

Lectures, 1 a week, December to May.

THE PRINCIPLES AND PRACTICE OF SURGERY, begun.

Lectures, 2 a week.

Clinical Lectures, at the Vanderbilt Clinic, twice a week.

Clinical Lectures and the witnessing of operations at the New York or Roosevelt Hospital, once a week.

Required of students of the third-year class by sections.

Practical Clinical Instruction, to sections, for each student, twice a week for sixteen weeks at the Vanderbilt Clinic and out-patient department of the Roosevelt Hospital.

Optional—Clinical Lectures and the witnessing of operations at the following hospitals: The New York, Presbyterian, St. Luke's, and St. Mary's Free Hospital for Children.

OBSTETRICS, continued.

Lectures, 3 a week, October to March.

GYNECOLOGY, continued.

Lectures, 3 a week, March to May.

Clinical Lectures at the Vanderbilt Clinic, 1 a week.

Clinical Lectures and the witnessing of operations at the Roosevelt Hospital by sections, 6 exercises for each student.

Practical Clinical Instruction to sections, 6 exercises for each student.

VENEREAL AND GENITO-URINARY DISEASES.

Clinical Lectures at the Vanderbilt Clinic, 1 a week.

Clinical Lectures and the witnessing of genito-urinary operations at Bellevue Hospital, 1 a week for one half the year.

Practical Clinical Instruction to sections, 12 exercises for each student.

Optional—*Clinics* at the City Hospital, Blackwell's Island, 1 a week for two months.

DISEASES OF THE EYE.

Clinical Lectures at the Vanderbilt Clinic, 1 a week.

Practical Instruction to sections in the use of the ophthalmoscope and the functional examination of the eye, 12 exercises for each student.

Optional—*Practical Clinical Instruction* to sections at the New York Ophthalmic and Aural Institute.

DISEASES OF THE EAR.

Practical Clinical Instruction to half-sections, from 6 to 8 exercises for each student.

Four Didactic Lectures (delivered separately to each section, and in combination with a recitation) on general aural pathology and therapeutics.

EXAMINATIONS upon the work of the third year.

Fourth Year

THE PRACTICE OF MEDICINE, finished.

Lectures, 3 a week.

Clinical Lectures at the Vanderbilt Clinic, 2 a week.

Clinical Lectures or Instruction in the wards at the Roosevelt Hospital, once a week; at the New York Hospital, once a week for three months.

Practical Clinical Instruction to sections in the wards of the Roosevelt, Bellevue, or Presbyterian Hospitals, for each student, 2-hour exercises 3 times a week for 8 weeks.

Optional—*Clinical Instruction* in Bellevue and Presbyterian Hospitals, once a week.

DISEASES OF THE MIND AND NERVOUS SYSTEM, finished.

Lectures, 1 a week, December to May.

Clinical Lectures at the Vanderbilt Clinic, once a week.

Practical Clinical Instruction to sections in the diagnosis of diseases of the nervous system, 10 exercises for each student.

CLINICAL MICROSCOPY.

Laboratory Work, 2-hour exercises 3 times a week for 8 weeks.

THE PRINCIPLES AND PRACTICE OF SURGERY, finished.

Lectures, 2 a week.

Clinical Lectures at the Vanderbilt Clinic, 2 a week.

Required—1. *Clinical Lectures* and the witnessing of operations by sections at the New York or Roosevelt Hospital once a week.

2. *Surgical demonstrations* at the Roosevelt Hospital, one half the class once a week for one half the year.

3. *Practical Clinical Instruction* in the wards at Bellevue Hospital for two hours three days a week for seven weeks for each section and at St. Mary's Free Hospital for Children twice a week for six weeks.

4. *Operative Surgery* on the Cadaver, 12 lessons for each student.

Optional—Clinical Lectures and the witnessing of operations at the New York Hospital additional to the above and at the Presbyterian, Bellevue, St. Luke's, and St. Mary's Hospitals.

ORTHOPÆDIC SURGERY.

Clinical Lectures at the Vanderbilt Clinic, 1 a week.

Practical Clinical Instruction to sections, 12 exercises for each student.

OBSTETRICS, finished.

Two weeks' residence at the Sloane Maternity Hospital and attendance upon confinements.

Practical Clinical Instruction to sections, at the Sloane Maternity Hospital, for each student, daily for 1 week.

GYNECOLOGY, finished.

Clinical Lectures at the Vanderbilt Clinic, 1 a week.

DISEASES OF CHILDREN.

Clinical Lectures at the Vanderbilt Clinic, 1 a week.

Practical Clinical Instruction to sections, 12 lessons for each student.

DISEASES OF THE SKIN.

Clinical Lectures at the Vanderbilt Clinic, 1 a week.

Practical Clinical Instruction to sections, 12 lessons for each student.

DISEASES OF THE THROAT AND NOSE.

Clinical Lectures at the Vanderbilt Clinic, 1 a week.

Practical Clinical Instruction to sections, 12 lessons for each student.

EXAMINATIONS upon the work of the fourth year.

Clinics at the Vanderbilt Clinic

Eleven clinics are given each week at the Vanderbilt Clinic, as follows :

SURGICAL—Professor BULL, Thursdays, at 12 M.; Professor WEIR, Mondays, at 12 M.

ORTHOPÆDIC SURGERY—Professor GIBNEY ; Fridays, 12 M.

DISEASES OF THROAT AND NASAL PASSAGES (with laryngoscopic and rhinoscopic demonstrations)—Professor LEFFERTS ; Mondays, 2 P.M.

DISEASES OF THE SKIN—Professor FOX ; Mondays, 3 P.M.

DISEASES OF THE EYE—Professor KNAPP ; Tuesdays, 2 P.M.

DISEASES OF CHILDREN—Professor JACOBI ; Wednesdays, 2 P.M.

VENEREAL AND GENITO-URINARY DISEASES—Professor TAYLOR ; Thursdays, 2 P.M.

MEDICAL—Professor DELAFIELD ; Thursdays, 3 P.M.

DISEASES OF THE MIND AND NERVOUS SYSTEM—Professor STARR ; Fridays, 2 P.M.

GYNECOLOGICAL—Professor TUTTLE ; Fridays, 3 P.M.

Hospital Clinics

See the several departments. For appointments to the House Staffs of the hospitals, see page 251.

Besides the Vanderbilt Clinic, the general and special hospitals of New York afford most important fields for clinical teaching. This college is strongly represented on the staffs of these institutions, and regular clinical instruction at hospitals is made a prominent feature of the curriculum. *Admission is free* to all matriculated students. At all the following hospitals instruction is given by officers of the college :

SLOANE MATERNITY HOSPITAL, corner of Fifty-ninth Street and Tenth Avenue.

ROOSEVELT HOSPITAL—This has long been the seat of thorough clinical work, and has become of special importance in this respect from its position immediately opposite the new buildings of the College of Physicians and Surgeons upon Fifty-ninth Street, between Ninth and Tenth Avenues. Moreover, this hospital, a few years ago, received a bequest of several hundred thousand dollars for the erection and endowment of **THE SYMS OPERATING THEATRE**, which now offers unrivalled facilities for instruction in operative surgery.

THE MCLANE OPERATING THEATRE is used for operative gynecology by Professor Tuttle exclusively.

The Roosevelt is a general hospital of one hundred and eighty beds, and it also possesses a flourishing out-patient department.

Public clinics are given here as follows, throughout the college session ;

Medical—Mondays, at 4 P.M., Professors DELAFIELD and PEABODY

Surgical—Saturdays, at 2.30 P.M., Professor MCBURNEY

Gynecological—Tuesdays, Thursdays, and Saturdays, at 2.30 P.M., Professor TUTTLE

NEW YORK HOSPITAL, Fifteenth Street, between Fifth and Sixth Avenues—Reached from the Medical College by taking the Sixth Avenue Elevated Railroad at the corner of Ninth Avenue and Fifty-ninth Street, and leaving the cars at the corner of Fourteenth Street and Sixth Avenue ; or by the surface cars.

This is a general hospital of the highest class, of one hundred and fifty beds, with an out-patient department.

The public clinics are the :

Medical—Saturdays, at 9.30 A.M., and Thursdays, at 3.30 P.M., from November to May, Professors PEABODY and BALL

Surgical—Wednesdays, at 2.30 P.M., October to February, Professor WEIR ; Saturdays, at 3 P.M., Professors WEIR and BULL ; Tuesdays and Fridays, at 3.30 P.M., February to June, Dr. HARTLEY

BELLEVUE HOSPITAL, Twenty-sixth Street and East River—Easily reached from the college by the electric cars of the Metropolitan Traction Company, transferring to the Lexington Avenue or Second Avenue cars.

This hospital has eight hundred beds and receives sixteen thousand patients annually, of whom one fourth are in the exclusive charge of officers of this college.

The service of the out-patient department also covers a great range of practice ; and two newly built operating theatres, a large and a smaller one, are in full use.

The following clinics are held here during the session :

Medical—Tuesdays, 2.30 P.M., Professor JACOBI and Drs. JAMES and JACKSON

Surgical—Tuesdays, 2.30 P.M., Drs. F. H. MARKOE and GALLAUDET

Diseases of Children—Mondays, 3 P.M., from April to June, Professor JACOBI

Venereal and Genito-Urinary—Tuesdays, 3 P.M., Professor TAYLOR

ST. LUKE'S HOSPITAL, Morningside Heights, One Hundred and Thirteenth Street and Amsterdam Avenue.

Surgical—Drs. F. H. MARKOE and ROBERT ABBE will give a clinic to which students are admitted on Fridays at 2.30 P.M.

PRESBYTERIAN HOSPITAL, Madison Avenue and Seventieth Street—Accessible from the Medical School by the Fifty-ninth Street electric cars, transferring to the Madison Avenue cars, which pass the building.

This is a large general hospital of three hundred and thirty beds. The following clinics will be held here throughout the session :

Surgical—Tuesdays, 3.30 P.M., Dr. MCCOSH

Medical—December, January, February, March, April, Tuesdays, 3.30 P.M., Professor KINNICUTT

CITY HOSPITAL (formerly CHARITY HOSPITAL), Blackwell's Island, East River—To reach this institution the steamer should be taken at the foot of East Fifty-second Street. This hospital offers a peculiarly rich field for the study of venereal and genito-urinary diseases, over two thousand such cases being received yearly. Dr. HAYDEN gives a clinic as follows :

Venereal and Genito-Urinary—Wednesdays, 2 P.M., from February 1st to April 1st.

WILLARD PARKER HOSPITAL, foot of East Sixteenth Street ; reached from the Medical School by the cars of the Metropolitan Traction Co. : RIVERSIDE HOSPITAL, North Brother Island, East River ; reached by special boat from the foot of East One Hundred and Thirty-eighth Street.

These hospitals, in charge of the New York City Health Department, offer a rich field for the study of *Contagious Diseases* not admitted to other hospitals in the city, such as diphtheria, scarlet fever, small-pox, typhus fever, measles, and others. Dr. J. W. BRANNAN gives a clinic to which students are admitted in small sections after special registration, on Tuesdays and Saturdays, at 3 P.M., in November, December, March, and April.

NEW YORK CANCER HOSPITAL, One Hundred and Sixth Street and Eighth Avenue—Elevated Railroad station, One Hundred and Fourth Street and Ninth Avenue. It can be reached also by the Eighth Avenue surface road.

One clinic a week is held here, viz. :

Gynecological—Tuesdays, 9 A.M., Dr. GEO. W. JARMAN

NEW YORK OPHTHALMIC AND AURAL INSTITUTE, 44 and 46 East Twelfth Street—Reached by the Sixth Avenue Elevated train, which should be left at the Fourteenth Street station ; or by the Broadway Cable cars.

This hospital has forty beds, and a large daily dispensary service is held for diseases of the eye and ear. Throughout the session the following clinic is held :

Ophthalmological—(Admission by invitation of sections.) Selected cases for diagnosis and treatment ; the most important operations on the eye. Wednesdays, 2 to 3.45 P.M., Professor KNAPP

HOSPITAL FOR THE RUPTURED AND CRIPPLED, cor. Lexington Avenue and Forty-second Street—Reached by electric cars along Fifty-ninth Street, transferring to Lexington Avenue cars.

The following clinics are held here, viz. :

Tu. and Th., 8.30–9.30 A.M., Professors GIBNEY and BULL

ST. MARY'S FREE HOSPITAL FOR CHILDREN, 405 and 407 West Thirty-fourth Street—Reached by the Ninth Avenue Elevated Railroad.

One clinic a week is held here, viz. :

Th., 10.30–11.30 A.M., Dr. CHAS. T. POORE

BOARD

Information in regard to board can be obtained through the Registrar, Mr. E. T. Boag, at his office in the medical school. Prices range from \$5 to \$9 per week.

CORRESPONDENCE

Letters requesting information should be addressed to Edwin B. Cragin, M.D., Secretary of the Faculty, 437 West Fifty-ninth Street, New York.

EXAMINATIONS AND STANDING

Each student must be examined at the close of each session upon the work of that session.

A second examination, for candidates found deficient at the close of the first, second, or third year's work, will be held during the week before the opening of the following session.

Exemption from Physics and General Chemistry

1. Persons who have pursued successfully at colleges, scientific schools, or universities, courses in Physics, or General Chemistry, or both, substantially equivalent to those given to medical students at this University, may be exempted from the first-year work in either or both of the above subjects on presentation of properly authenticated certificates from the institutions at which the said courses were pursued.

2. Persons who have pursued elsewhere than at colleges, scientific schools, or universities, courses in Physics, or General Chemistry, or both, claimed to be substantially equivalent to those given to medical students at this University, may be exempted from the first-year work in either or both of the above subjects on passing satisfactory examinations both theoretical and practical.

Admission to Advanced Standing

Admission may be granted to advanced standing at the beginning of the second or of the third year, but not of the fourth year without the special consent of the Faculty.

Every applicant for advanced standing will be required (1) to present satisfactory evidence of having attended, in a recognized medical school (or, *for General Chemistry or Physics* in a recognized college, scientific school, or university), courses reasonably equivalent to those already attended by the class to which he seeks admission; (2) to be examined for admission in all the subjects in which the said class shall have been examined already; (3) to present a medical-student certificate from the Regents of the University of the State of New York; (4) to matriculate with the payment of the regular matriculation fee (five dollars).

A candidate for admission to advanced standing at the beginning of the second or third year may be so admitted either unconditionally or conditionally. In the latter case, his admission will be upon the same terms as govern students who have pursued at this college the curriculum of the first or second year.

During the week before the opening of each session there will be held examinations upon the work done during the previous session in each department of the first, second, and third years of the course, which examinations will be open both to candidates found deficient at the end of the previous session, and to candidates for admission to advanced standing at the beginning of the second, third, or fourth year.

Standing at the End of the First Year

The standing of a student for the first year will be determined as follows:

1. *Physiology*, by an examination in writing upon the lectures and demonstrations of the year.

2. *Anatomy*, by (a) a record of the student's practical work during the year; (b) practical examination; (c) a brief examination in writing.

3. *Normal Histology*, as for Anatomy.

4. *General Chemistry*, by (a) a record of the student's practical work during the year; (b) a practical examination; (c) an examination in writing.

5. *Physics*, by (a) a record of the student's practical work during the year; (b) a practical examination; (c) an examination in writing.

A bad record of practical work in a department may bar a student from examination; or a bad practical examination may bar him from an examination in writing; the result in either case being failure in the year's work in that department.

No student will be permitted to advance with his class from the first to the second year, unless his standing shall have been found satisfactory, before the beginning of the work of the second year, in four out of the five departments of (1) Physics; (2) General Chemistry; (3) Anatomy; (4) Normal Histology; (5) Physiology.

A student found deficient in the autumn in more than one subject of the first year will be obliged to repeat the work of the year in all the departments in which he shall have been found deficient, and to pay a tuition fee of \$50 per department, provided the amount thus charged does not exceed the tuition of the year.

A student found still deficient at the end of the second year in one of the subjects of the first year, may advance with his class provided he fails at the spring examination in not more than one of the studies of the second year, and provided that he makes good his deficiency in the first-year study before entering upon the work of the third year.

Standing at the End of the Second Year

The standing, in the respective departments, of a student at the end of his second year will be based upon the following tests, to be applied by, or under the direction of, the Professor in charge of the department unless otherwise expressly specified :

Anatomy.

- (1) A record of practical work during the year.
- (2) A practical examination in Anatomy.
- (3) A written examination, of a length to be determined by the Professor, and to be judged directly by him.

Normal Histology.

- (1) A record of practical work during the year.
- (2) A practical examination in Normal Histology.
- (3) A brief written examination, of a length to be determined by the Professor of Pathology.

Physiological Chemistry.

- (1) A record of practical work during the year.
- (2) The filing of a satisfactory book of notes upon the laboratory work of the entire course.
- (3) A written examination upon the lectures, conferences, and practical work of the course, the length and character of the examination to be determined by the Director of the department.

Physiology.

A written examination, of a length to be determined by the Professor, and to be judged directly by him, upon the subjects covered by the lectures and demonstrations of the year.

Materia Medica and Therapeutics.

A written examination, of a length to be determined by the Professor, and to be judged directly by him, upon the subjects covered by the instruction of the year.

Bacteriology.

- (1) A record of practical work during the year.
- (2) A practical examination in Bacteriology.
- (3) A brief written examination, of a character to be determined by the Professor of Pathology.

Pathological Anatomy.

Attendance at autopsies. No tests.

Obstetrics.

A written examination, of a length to be determined by the Professor, upon the subjects covered by the instruction of the year.

Gynecology.

A written examination, of a length to be determined by the Professor, upon the subjects covered by the instruction of the year.

No student will be permitted to advance with his class from the second to the third year unless A) his standing shall have been found satisfactory, before the beginning of the work of the third year, in *six* out of the *eight* studies of 1) Physiology, 2) Materia Medica and Therapeutics, 3) Obstetrics, 4) Gynecology, 5) Anatomy, 6) Normal Histology, 7) Bacteriology, 8) Physiological Chemistry; and unless B) the six studies in which his standing shall have been found satisfactory, as above, include not less than two of the following four studies, viz.: 1) Anatomy, 2) Normal Histology, 3) Bacteriology, and 4) Physiological Chemistry.

A student of the second year found deficient according to the terms of the above may be permitted to advance with his class, but must make good all deficiencies before entering upon the exercises of his fourth year.

The annual examinations will be held after the close of the second year's instruction; and further examinations, for candidates found deficient, will be held during the week before the opening of the following session.

A candidate for admission to advanced standing at the beginning of the third year may be so admitted either unconditionally or conditionally. In the latter case, his admission will be upon the same terms as govern students who have pursued at this college the curriculum of the second year.

Standing at the End of the Third Year

The standing, in the respective departments, of a student at the end of his third year will be based upon the following tests, to be applied by, or under the direction of, the Professor in charge of the department, unless otherwise expressly specified:

Materia Medica and Therapeutics.

A written examination, of a length to be determined by the Professor, and to be judged directly by him, upon the subjects covered by the instruction of the year.

Pathological Anatomy.

Attendance at demonstrations. A written examination, with Pathological Histology.

Pathological Histology.

- (1) A record of practical work during the year.
- (2) A practical examination in Pathological Histology.
- (3) A written examination, of a length to be determined by the Professor of Pathology, and to be judged directly by him.

The Practice of Medicine.

- (1) A record of practical work during the year in Physical Diagnosis.
- (2) A written examination, of a length to be determined by the Professor, and to be judged directly by him, upon the subjects covered by the instruction of the year.

Diseases of the Mind and Nervous System.

A written examination, of a length to be determined by the Professor, and to be judged directly by him, upon the subjects covered by the instruction of the year.

The Principles and Practice of Surgery.

- (1) A record of practical work during the year in Clinical Surgery.
- (2) A written examination, of a length to be determined by the Professors, and to be judged directly by them, upon the subjects covered by the instruction of the year.

Obstetrics.

A written examination, of a length to be determined by the Professor, and to be judged directly by him, upon the subjects covered by the instruction of the year.

Gynecology.

- (1) A record of practical work during the year in Clinical Gynecology.
- (2) A written examination, of a length to be determined by the Professor, and to be judged directly by him, upon the subjects covered by the instruction of the year.

Venereal Diseases.

- (1) A record of practical work during the year.
- (2) A written examination, upon the subjects covered by the instruction of the year, to be conducted and judged by the Professor.

Diseases of the Eye.

- (1) A record of practical work during the year.
- (2) A written examination upon the subjects covered by the instruction of the year, to be conducted and judged by the Professor.

Diseases of the Ear.

- (1) A record of practical work during the year.
- (2) A written examination upon the subjects covered by the instruction of the year, to be conducted and judged by the Professor.

No student will be permitted to advance with his class from the third to the fourth year unless he presents satisfactory records of practical work in Pathological Histology, Physical Diagnosis, Clinical Surgery, Clinical Gynecology, Venereal Diseases, Diseases of the Eye, and Diseases of the Ear.

By a satisfactory record is meant a certificate of punctual attendance, unless prevented by illness or unavoidable causes, on the practical courses. These courses can only be taken during the third year, so that they cannot be made up at a later time.

In addition, the student must pass satisfactory written examinations on *Materia Medica* and *Therapeutics*, *Pathological Histology*, *Practice of Medicine*, *Diseases of the Mind and Nervous System*, *Surgery*, *Obstetrics*, and *Gynecology*, *Venereal Diseases*, *Diseases of the Eye*, and *Diseases of the Ear*.

A student found deficient in only three of the seven departments of *Materia Medica* and *Therapeutics*, *Pathological Histology*, *Practice of Medicine*, *Diseases of the Mind and Nervous System*, *Surgery*, *Obstetrics*, and *Gynecology*, and in only two of the three departments of *Venereal Diseases*, *Diseases of the Eye*, and *Diseases of the Ear*, can advance with his class provided that he makes up all but one of the five subjects on which he is conditioned before October 10 of the fourth year.

Standing at the End of the Fourth Year, and Final Examinations.

The standing, in the respective departments, of a student at the end of his fourth year will be based upon the following tests, to be applied by, or under the direction of, the Professor in charge of the department, unless otherwise expressly specified :

Clinical Microscopy.

- (1) A record of practical work during the year.
- (2) A practical examination in Clinical Microscopy.
- (3) A written examination, of a length to be determined by the Professor of Pathology.

The Practice of Medicine.

- (1) A record of practical work during the year in Clinical Medicine.
- (2) A written examination, of a length to be determined by the Professor, and to be judged directly by him, upon the subjects covered by the instruction of the year.

Diseases of the Mind and Nervous System.

- (1) A record of practical work during the year in the diagnosis of nervous diseases.
- (2) A written examination, of a length to be determined by the Professor, and to be judged directly by him, upon the subjects covered by the instruction of the year.

The Principles and Practice of Surgery.

- (1) A record of practical work during the year in Clinical Surgery.
- (2) A record of practical work during the year in Operative Surgery upon the Cadaver.
- (3) A written examination, of a length to be determined by the Professors, and to be judged directly by them, upon the subjects covered by the instruction of the year.

Obstetrics.

- A record of practical work during the year in Clinical Obstetrics, including attendance upon confinements.

Diseases of Children.

- (1) A record of practical work during the year.
- (2) A written examination upon the subjects covered by the instruction of the year, to be conducted and judged by the Professor.

Diseases of the Skin.

- (1) A record of practical work during the year.
- (2) A written examination upon the subjects covered by the instruction of the year, to be conducted and judged by the Professor.

Diseases of the Throat and Nose.

- (1) A record of practical work during the year.
- (2) A written examination upon the subjects covered by the instruction of the year, to be conducted and judged by the Professor.

Orthopædic Surgery.

- (1) A record of practical work during the year.
- (2) A written examination upon the subjects covered by the instruction of the year, to be conducted and judged by the Professor.

No student will be recommended for the degree of M.D. unless he shall have presented satisfactory records of practical work during the fourth year in Clinical Microscopy, Clinical Medicine, the Diagnosis of Nervous Diseases, Clinical Surgery, Operative Surgery upon the Cadaver, Diseases of Children, Diseases of the Skin, Diseases of the Throat and Nose, Orthopædic Surgery, and Clinical Obstetrics, including attendance upon confinements. By a satisfactory record is meant a certificate of punctual attendance upon the practical courses, unless prevented by illness or unavoidable causes.

In addition, a candidate for graduation must pass a satisfactory practical examination in Clinical Microscopy, and satisfactory written examinations in the following subjects of the fourth year, viz.: (1) Practice of Medicine, (2) Diseases of the Mind and Nervous System, (3) Principles and Practice of Surgery, (4) Clinical Microscopy, (5) Diseases of Children, (6) Diseases of the Skin, (7) Diseases of the Throat and Nose, and (8) Orthopædic Surgery.

A student of the fourth year found deficient on examination in the spring in not more than three of the following eight departments, viz.: (1) Practice of Medicine, (2) Diseases of the Mind and Nervous System, (3) Principles and Practice of Surgery, (4) Clinical Microscopy, (5) Diseases of Children, (6) Diseases of the Skin, (7) Diseases of the Throat and Nose, and (8) Orthopædic Surgery, *provided the three departments in which he has been found deficient do not include more than one of the following departments*, viz.: (1) Practice of Medicine, (2) Diseases of the Mind and Nervous System, (3) Principles and Practice of Surgery, must present himself for re-examination the following autumn in all the departments in which he failed in the preceding spring. If at such re-examination the student be found deficient in *any* department or departments, he will be obliged to repeat the work of the fourth year in such department or departments, paying a special tuition fee of \$50.00 per department, and to present himself for re-examination the following spring in every

subject in which he shall have failed. If at such second re-examination he shall fail again in *any* department, he will cease to be considered a candidate for a degree.

A student found deficient in the spring in more than one of the three following departments, viz. : (1) Practice of Medicine, (2) Diseases of the Mind and Nervous System, (3) Principles and Practice of Surgery, or more than three departments altogether, will be obliged to repeat the work of the fourth year in all of the departments in which he shall have been found deficient, and to pay a tuition fee of \$50.00 per department.

Such a student will be required to present himself for re-examination the following spring, in every subject in which he shall have failed. If at such re-examination he shall fail again in any department or departments, he must be re-examined therein the following autumn. If at such re-examination he shall again fail in *any* department, he will cease to be considered a candidate for a degree.

REQUIREMENTS FOR GRADUATION

Every candidate before admission to the degree of M.D. will be required :

1. To present satisfactory evidence, as required by law, of good moral character, and of having attained the age of twenty-one years.

2. To present evidence of having complied with the requirements for admission.

3. To have attained to satisfactory standing in the required studies of the four years of the curriculum.

4. A candidate who shall have been admitted to advanced standing will be required to have spent not less than four academic years at the studies referred to in the clause next preceding ; and to have complied successfully with the requirements for admission to advanced standing.

No two academic years which shall have begun during the same calendar year will be held to satisfy the requirements of the above clause.

THE DEGREE OF MASTER OF ARTS

The degree of Master of Arts may be conferred upon students holding college degrees, who shall have completed with distinction the entire course of the School of Medicine, provided that in each case the candidate presents a satisfactory dissertation, and that at least a part of the extra work required of him for the degree of Master of Arts be taken under the direction of the Faculty of Philosophy, Political Science, or Pure Science, to the extent of one minor course, for not less than one year.

Students in the School of Medicine who are candidates for the degree of Master of Arts, in accordance with the above paragraph, are subject to the regulations of the Faculty of Philosophy, Political Science, or Pure Science, under which the extra work is taken, and which finally recommends the candidates for the degree. Such students should apply to the Dean of the same faculty for a registration-book.

HOSPITAL APPOINTMENTS

By a resolution of the Commissioners of Public Charities, the Faculty of this college is entitled to nominate for appointment by the Commissioners, after competitive examination in the college, its proportion of members of the House Staff of Bellevue Hospital ; such members to be attached to that division of the said hospital which has been assigned to the care of the college.

Four nominations, two medical and two surgical, are made each year by the college from among its graduates, under the above resolution.

One medical and one surgical assistant go on duty upon July 1 ; in the same way one medical and one surgical assistant upon January 1.

The choice as to character of service, and the time of beginning the same, is given to the successful candidates in the order of their merit.

The surgical nominees all serve the hospital for six months in each of the four grades of ambulance surgeon, junior assistant, senior assistant, and house surgeon ; each one having thus a total of two years' experience on the House Staff.

The medical nominees serve each in the four grades of sub-junior assistant, junior assistant, senior assistant, and house physician.

Similar positions are filled twice in each year, by public competitive examinations, open to graduates of this college, in the following institutions :

The " non-collegiate " division of Bellevue Hospital ; the New York Hospital ; the Roosevelt Hospital ; St. Luke's Hospital ; the City Hospital ; Blackwell's Island ; the Alms-House Hospitals ; the Work-House Hospital ; St. Vincent's Hospital ; St. Francis' Hospital ; the German Hospital ; the Mount Sinai Hospital ; the Presbyterian Hospital ; the Woman's Hospital ; the Brooklyn Hospital ; St. Catherine's Hospital, Brooklyn ; St. Peter's Hospital, Brooklyn ; the King's County Hospital, Flatbush, L. I., and about thirty others.

ALONZO CLARK SCHOLARSHIP

See page 36.

FELLOWSHIPS

For the University Fellowships, see page 26.

For the Alumni Association Fellowships, see page 35.

PRIZES

For the Harsen Prizes for clinical reports, see page 36.

For the Harsen Prizes for proficiency at examination, see page 36.

For the Alumni Association Prize, see page 37.

For the Cartwright Prize, see page 37.

For the Stevens Triennial Prize, see page 37.

For the Joseph Mather Smith Prize, see page 38.

EQUIPMENT AND COLLECTIONS

Detailed information as to the laboratories, collections, and other facilities for study will be found in the statements of the various departments of instruction, pages 51 to 180.

REQUIREMENTS FOR LICENSE TO PRACTISE MEDICINE
IN NEW YORK STATE

All requirements for admission should be completed at least one week before examinations.—They are as follows :

1. Evidence that applicant is more than 21 years of age (Form 1).
2. Certificate of moral character from not less than two physicians in good standing (Form 2).
3. Evidence that applicant has the general education required, preliminary to receiving the degree of Bachelor or Doctor of Medicine in this state (medical-student certificate. See examination handbook).
4. Evidence that applicant has studied medicine not less than four full school years of at least nine months each, in four different calendar years, in a medical school registered as maintaining at the time a satisfactory standard. New York medical schools and New York medical students shall not be discriminated against by the registration of any medical school out of the State, whose minimum graduation standard is less than that fixed by statute for New York medical schools.

The increase in the required course of medical study from three to four years does not take effect till January 1, 1898, and does not apply to students who matriculated before that date and received the degree of M.D. before January 1, 1902 (Form 1).

First exemption : "The regents may in their discretion accept as the equivalent for any part of the third and fourth requirements, evidence of five or more years' reputable practice of medicine, provided that such substitution be specified in the license."

5. Evidence that applicant "has received the degree of bachelor or doctor of medicine from some registered medical school, or a diploma or license conferring full right to practise medicine in some foreign country" (Form 3 or original credentials).

6. The candidate must pass examinations in anatomy, physiology, and hygiene, chemistry, surgery, obstetrics, pathology and diagnosis, therapeutics, practice, and materia medica. The questions "shall be the same for all candidates, except that in therapeutics, practice, and materia medica all the questions submitted to any candidate shall be chosen from those prepared by the board selected by that candidate, and shall be in harmony with the tenets of that school as determined by its state board of medical examiners."

Second exemption : "Applicants examined and licensed by other state examining boards registered by the regents as maintaining standards not lower than those provided by this article, and applicants who matriculated in a New York state medical school before June 5, 1890, and who received the degree of M.D. from a registered medical school before August 1, 1895, may without further examination, on payment of \$10 to the regents and on submitting such evidence as they may require, receive from them an indorsement of their licenses or diplomas, conferring all rights and privileges of a regents' license issued after examination."

7. A fee of \$25, payable in advance.

Medical Examinations

Examinations for license to practise medicine in this state will be held as follows :

DATES

1899

January . . . 24-27

April 4- 7

May 16-19

June 13-16

September . . 26-29

Each candidate is notified as to the exact place.

Address all communications concerning license examinations to *Examination Department, University of the State of New York, Albany, N. Y.*

REGISTER OF STUDENTS

FOURTH-YEAR CLASS

Abbe, Truman, A.B., <i>Harvard</i>	New York
Addoms, Lewis Paddock.....	Brooklyn
Addy, Arthur Rockwell, A.B., <i>Marietta</i>	New York
Allée, William Hanford, Jr.....	Brooklyn
Antony, Charles Leonard.....	New York
Appel, Hermann Nehemiah.....	Brooklyn
Armstrong, William Buckingham	Atlanta, Ga.
Aronson, Edward Aaron.....	New York
Bailey, Theodorus, B.S., <i>Princeton</i>	New York
Barclay, Harold.....	New York
Barnes, George Edward, A.B., <i>Cornell</i>	Herkimer, N. Y.
Barnett, Edward Le Roy, B.S., <i>St. Lawrence</i>	Brushton, N. Y.
Barry, Thomas Joseph	New York
Bastedo, Walter Arthur, Ph.G., <i>College of Pharmacy</i> , Newmarket, Ont., Can.	
Beer, Edwin, A.B., <i>Columbia</i>	New York
Bennett, Reginald Sidney.....	Tinton Falls, N. J.
Birckhead, James, A.B., A.M., <i>Trinity</i>	New York
Bleick, Theodore Edward.....	Newark, N. J.
Bodkin, Dominic George.....	Brooklyn
Boyd, August Samuel	New York
Bradner, Frederick Clark, A.B., <i>Princeton</i>	Warwick, N. Y.
Brady, Frederick L.....	New York
Brandeis, Julian Walter, B.S., <i>N. Y. City College</i>	New York
Bryan, Robert Coalter.....	Richmond, Va.
Bullwinkle, Franklin.....	Brooklyn
Campbell, Horace.....	San José, Cal.
Carhart, George Arthur, B.S., <i>Univ. of Wisconsin</i>	Milwaukee, Wis.
— Cherry, William Samuel, A.B., A.M., <i>Columbia</i>	New York
Clark, Abram Schuyler, B.S., <i>Rutgers</i>	New Brunswick, N. J.
Clarke, William Cogswell.....	Tenafly, N. J.
Crawford, William Barron.....	Savannah, Ga.
Cummings, John Joseph.....	Worcester, Mass.
Davidson, John MacBain.....	Brooklyn
Davis, Fellowes, Jr.....	New York
Dillenberg, Joseph, B.S., <i>N. Y. City College</i>	New York
Donovan, Patrick George.....	Townsend, N. Y.

Downs, Augustus Sherman.....	Saratoga, N. Y.
Dryfoos, Arthur David, A.B., <i>N. Y. City College</i>	New York
Eakins, Olin Martin.....	Paterson, N. J.
— Emerson, Haven, A.B., <i>Harvard</i>	New York
Fitch, Charles Wilmer, A.B., <i>Williams</i>	Mooers, N. Y.
Floyd, Rolfe, A.B., <i>Harvard</i>	Mastic, N. Y.
Foote, Sherman Knevals, A.B., <i>Yale</i>	New York
George, Frederick Siebert.....	Seneca Falls, N. Y.
Getman, J. Edgar.....	Gloversville, N. Y.
Gilmour, Andrew James, Ph.B., <i>Yale</i>	Fulton, N. Y.
— Gould, Everett Willoughby, A.B., <i>Columbia</i>	Watertown, N. Y.
Gray, Alfred William, A.B., <i>Univ. of Wisconsin</i>	Milwaukee, Wis.
Gross, John Conrad.....	New York
Hall, Myron Foster.....	Elmira, N. Y.
Hanan, James Taylor.....	Waterford, Conn.
Holden, Edgar, Jr., A.B., <i>Princeton</i>	Newark, N. J.
Howe, Henry Newell.....	Monson, Mass.
Hughes, Frederic John.....	Plainfield, N. J.
Hughes, John Lawrence.....	New York
Humpstone, Oliver Paul.....	Brooklyn
Hyams, Benno.....	New York
Ingling, Harry Warrington.....	Freehold, N. J.
Jackson, Joseph Maurice.....	Pittsburg, Pa.
Jackson, Reginald Henry.....	Madison, Wis.
Jacobs, William Ketchum.....	Brooklyn
Jennings, John Edward.....	Brooklyn
Judkowitz, Herman.....	New York
Kane, Charles Joseph, A.B., <i>Fordham</i>	Paterson, N. J.
Keschner, Moses.....	New York
Knight, Frank Henry.....	Brooklyn
Kosmak, George William, A.B., <i>Columbia</i>	New York
Kurrus, John.....	Long Branch, N. J.
Lawrence, William Henry, Jr.....	Summit, N. J.
Lesser, Mozart Monae.....	New York
Line, Arthur Maxwell, A.B., <i>Harvard</i>	New York
Livengood, Horace Ruthaford.....	Elizabeth, N. J.
Loughran, Robert Livingston, A.B., <i>Princeton</i>	Kingston, N. Y.
Lowenstein, Victor.....	New York
— Lyman, Henry Stoddard, A.B., <i>Yale</i>	Omaha, Neb.
Lynn, Charles Willard.....	New York
MacAlister, William Wallace.....	Paterson, N. J.
McCafferty, John Aloysius, A.B., <i>Manhattan</i>	New York
McCastline, Robert.....	New York
McDonald, William, Jr., B.P., <i>Brown</i>	Albany, N. Y.
McKee, Fred Lyman.....	New York
Mendel, Edwin Marcus, A.B., <i>Harvard</i>	Milwaukee, Wis.
Miller, Edward Ira.....	Newark, N. J.

Miller, James Alexander, A.B., A.M., <i>Princeton</i>	Roselle, N. J.
Moss, L. Howard.....	Brantford, Can.
Myrick, Frank Worman.....	Binghamton, N. Y.
Neresheimer, Frederick Emil.....	Bayside, L. I., N. Y.
Nesbitt, Robert Henry.....	Wheeling, W. Va.
Noble, Robert Ernest, M.S., <i>Alabama Polytechnic Inst.</i>	Anniston, Ala.
O'Brien, Francis Jeremiah Vincent, A.B., <i>Univ. of Toronto</i> , Rochester, N. Y.	
O'Connor, Charles George, A.B., <i>Manhattan</i>	Brooklyn
O'Connor, James Henry, A.B., <i>Holy Cross</i>	North Chelmsford, Mass.
Ogilvie, James, A.B., <i>Williams</i>	Lawrence, Mass.
Osgood, Alfred Townsend, A.B., <i>Yale</i>	Rochester, N. Y.
Payne, William Anderson.....	Chatham, Va.
Pierson, Frederick Harrison, Jr., B.S., <i>Rutgers</i>	Elizabeth, N. J.
Pollard, Charles Whitney, A.B., <i>Dartmouth</i>	New York
Pool, Eugene Hillhouse, A.B., <i>Harvard</i>	Harrison, N. Y.
Potter, Palmer Augustus, B.S., <i>Amherst</i>	New York
Pulsifer, Tappan Chase, A.B., <i>Bates</i>	Auburn, Me.
Rambaud, George Gibier.....	New York
Roemer, William Benjamin.....	New Hartford, N. Y.
Rosenberg, Maurice.....	New York
Rosenwasser, Charles Adolph.....	Newark, N. J.
Russell, Tracy George, A.B., <i>Leland Stanford, Junior</i> ...San Francisco, Cal.	
Rutz, Anthony Alexander, A.B., A.M., <i>St. Francis Xavier</i>	Brooklyn
Ryder, George Hope, A.B., <i>Yale</i>	Plainfield, N. J.
Salant, William, B.S., <i>Cornell</i>	New York
Schnecker, William Augustus Muhlenberg.....	New York
Scofield, Charles Edward.....	Brooklyn
Scully, Daniel Joseph, Jr.....	Brooklyn
Severino, Joseph Minelli.....	Astoria, N. Y.
Shipley, Alfred Edward.....	Brooklyn
Shirrefs, Russell Aber.....	Elizabeth, N. J.
Shrier, Albert Franklin.....	New York
Sloan, Thomas George.....	New Haven, Conn.
Smith, John Archibald.....	Peekskill, N. Y.
Spencer, Frederick Hallett.....	Waverly, N. Y.
Squire, Amos Osborne.....	Cold Spring, N. Y.
Stark, Meyer Maurice, A.B., <i>N. Y. City College</i>	New York
Stern, Abram Richard.....	New York
Stevenson, Robert.....	New Bridge, N. J.
Stone, Squire Wilbert.....	New York
Streeter, George Linius, A.B., <i>Union</i>	Johnstown, N. Y.
Sutton, Edward Forrester Holden, A.B., <i>Princeton</i>	New York
Tierney, Myles Joseph, A.B., A.M., <i>St. Francis Xavier</i> , Georgetown, New York	
Tompkins, Frank Edward.....	New York
Trenchard-Wood, Alfred, A.B., A.M., <i>St. Francis Xavier</i>	New York
Ullman, Albert Eckhardt, A.B., <i>Harvard</i>	New York
Virgin, Frederic Oakman, A.B., <i>Columbia</i>	New York

Wadhams, Raymond Lynde, A.B., <i>Princeton</i>	Wilkesbarre, Pa.
Waechter, Adolf Ludwig.....	New York
Wainwright, Jonathan Mayhew, A.B., <i>Trinity</i>	Hartford, Conn.
Wakefield, Fred Symonds, A.B., <i>Bates</i>	Lewiston, Me.
Warren, George Linden.....	Newark, N. J.
Watson, Oscar, A.B., A.M., <i>Univ. of New Brunswick</i>	New York
Wheeler, Richard Kimble, A.B., <i>Univ. of Rochester</i>	Rochester, N. Y.
Williams, Linsly Rudd, A.B., <i>Princeton</i>	New York
Wilson, Claude Lucas, A.B., <i>Wesleyan</i>	Middletown, Conn.
Fourth-Year Class.....	139

THIRD-YEAR CLASS

Abbott, Theodore Jacob, A.B., <i>Harvard</i>	Cornwall, N. Y.
Adams, Charles Baker, A.B., <i>Amherst</i>	Amherst, Mass.
Adler, Marian Samuel.....	New York
Agatstein, Sigmund.....	New York
Alexander, David Esterbrook.....	New York
Allen, William Thomas.....	Brooklyn
Alsberg, Carl Lucas, A.B., <i>Columbia</i>	New York
Baird, Addison Waddell.....	New York
Ballin, Milton Julius, Ph.B., <i>Yale</i>	New York
Bandler, Leon.....	New York
Banta, Edward Woodruff.....	New York
Bebee, Edwin Lorendus, A.B., <i>Amherst</i>	Westfield, N. Y.
Bernstein, Eugene Paul, B.S., <i>N. Y. City College</i>	New York
Bieber, Joseph.....	New York
Bingham, Arthur Walker, A.B., <i>Yale</i>	West Cornwall, Vt.
Black, John Fielding James, V.S., <i>Ontario</i>	Dublin, Ireland
Blumenthal, Jules Leon.....	New York
Breckwedel, Harry Benjamin.....	New York
Brinsmade, Daniel Bradley, A.B., <i>Yale</i>	Washington, Conn.
Brooke, William Wallace.....	Bayonne, N. J.
Brown, Thomas Evans Westman, B.S., <i>University of North Carolina</i> , Asheville, N. C.	
Byington, Roderick, Jr., B.S., <i>Princeton</i>	New York
Cassebeer, Henry Arthur, Jr., A.B., <i>Harvard</i>	New York
Celler, Herbert Louis, A.B., <i>Columbia</i>	New York
Cochran, Guy Hunt, A.B., <i>Leland Stanford, Junior</i>	Los Angeles, Cal.
Cochrane, Frank Lawrence.....	Brooklyn
Connell, Karl Albert.....	Omaha, Neb.
Crampton, Charles Ward.....	New York
Crane, Claude Granville.....	Middletown, N. Y.
Cronin, William.....	New London, Conn.
Cross, Frank Bethel.....	New York
Darling, Everett Field, B.S., <i>Worcester Tech</i>	Mendon, Mass.
Deely, George Edward, A.B., <i>Williams</i>	Lee, Mass.
Dempewolff, August Fred.....	New York

Ditman, Norman Edward, Ph.B., <i>Yale</i>	Englewood, N. J.
Dodd, Edward Lewis, A.B., <i>Princeton</i>	Newark, N. J.
Donohue, Francis Bernard, A.B., <i>Seton Hall</i>	Paterson, N. J.
Dorman, Harry Gaylord, A.B., <i>Harvard</i>	Upper Montclair, N. J.
Driscoll, Daniel Michael.....	Norwich, Conn.
Duffield, Francis, A.B., <i>Harvard</i>	Detroit, Mich.
Dwyer, Joseph William.....	Garfield, N. J.
Everitt, Chauncey Valentine.....	Jersey City, N. J.
Fahnestock, Clarence.....	New York
Fahnestock, Ernest.....	New York
Fendrich, Adam Edward.....	Highwood Park, N. J.
Fowler, Edmund Prince.....	New York
Frank, Robert Tilden, A.B., <i>Harvard</i>	New York
Frissell, Lewis Fox, A.B., A.M., <i>Yale</i>	New York
Funk, John Arthur, A.B., <i>New York University</i> ..	West New Brighton, N. Y.
Furman, Reginald, A.B., <i>Harvard</i>	New York
Gershel, Milton, B.S., <i>N. Y. City College</i>	New York
Geyer, Harold Carl, A.B., <i>Columbia</i>	New York
Gieschen, Albert Henry, Ph.G., <i>College of Pharmacy</i>	New York
Goodman, Marcus Leopold.....	New York
Graham, James Frank.....	Memphis, Tenn.
Grant, James Edward.....	Hamilton, N. Y.
Grausman, Philip Michael.....	Raleigh, N. C.
Green, Stith Gordon, A.B., <i>Millsof College</i>	Jackson, Miss.
Halsey, Robert Hurtin, A.B., <i>Columbia</i>	Astoria, N. Y.
Hanscom, Howard Chapin, A.B., <i>Colby</i>	New York
Hayt, Ralph Agustus.....	Fishkill, N. Y.
Henriquez, Charles Louis, B.S., <i>Seton Hall</i>	New York
Hensel, Otto, Ph.G., <i>College of Pharmacy</i>	New York
Holmes, George Jenkinson.....	West Summit, N. J.
Honnet, Joseph Harry.....	Wilmington, N. C.
Hooker, Ransom Spafard, B.L., <i>Hobart</i>	New York
Hoole, Lester Page, A.B., <i>Yale</i>	Brooklyn
Horowitz, Jacob.....	New York
Horsford, Frederick Charles, Ph.G., <i>College of Pharmacy</i> ..	Ogdensburg, N. Y.
Hubschmitt, Adam Wendell, A.B., <i>N. Y. City College</i>	New York
Hutton, Edward Hyatt, A.B., <i>Williams</i>	Corning, N. Y.
Hynes, Edward Gibson, A.B., A.M., <i>St. Francis Xavier</i>	Brooklyn
Jacoby, Leo.....	New York
Jarmulowsky, Harry.....	New York
Jedel, Meyer.....	Newark, N. J.
Johnson, Philip Van Kuren.....	Denver, Colo.
Jones, Mortimer Dunham.....	Far Rockaway, N. Y.
Kahn, Samuel.....	New York
Kelly, Aquinas Sarsfield.....	New York
Kennedy, Thomas Joyce Lenox.....	New York
Kirkman, Leroy Gresham, A.B., <i>Princeton</i>	Port Jervis, N. Y.

Knowles, Frederick.....	New York
Knudsen, Arthur Sinclair, A.B., <i>Harvard</i>	Kanai, Hawaiian Islands
Koronefsky, Jacob.....	New York
Krebs, Maurice Hill.....	New York
Krug, Ernest Frederick.....	Cleveland, O.
Landes, Edwin Walter.....	Newark, N. J.
Lathrop, Samuel Salisbury.....	Norwich, Conn.
Lebhar, Norman Jacob.....	New York
Levy, Edward.....	New York
Lobenstein, Ralph Waldo, A.B., <i>Yale</i>	New York
Love, Leslie Clifford, A.B., <i>Princeton</i>	Montclair, N. J.
Lyle, Henry Hamilton Moore.....	Hamilton, Canada
Macdougall, Geoffrey Westropp.....	Toronto, Canada
Mantinband, Jacob.....	New York
Margulies, Irving.....	New York
Margulis, Jacob.....	New York
Marsh, Elias Joseph, Jr., A.B., <i>Harvard</i>	Paterson, N. J.
Martin, Thomas Aloysius, B.S., <i>N. Y. City College</i>	New York
Martin, Urban Francis, B.S., <i>N. Y. City College</i>	West New Brighton, N. Y.
Mason, Lucius Julius, B.L., <i>Dartmouth</i>	New York
McLaughlin, Andrew Joseph, Jr.....	Norwich, Conn.
Menk, Paul Ernest William, Ph.G., <i>College of Pharmacy</i>	Newark, N. J.
Miller, Franklyn Henry.....	Brooklyn
Millspaugh, Willard Pierrepont, A.B., <i>Williams</i>	Richmond, N. Y.
Montgomery, Walter Clark.....	New York
Moore, Clifford Colgate.....	New York
Moschcowitz, Eli, A.B., <i>N. Y. City College</i>	New York
Mund, Conrad, A.B., <i>N. Y. City College</i>	New York
Navoni, James.....	New York
Noonan, Cornelius James.....	Brooklyn
North, Charles Edward, A.B., <i>Wesleyan</i>	Montclair, N. J.
O'Dwyer, Joseph.....	New York
Orgel, David Henry.....	New York
Packard, Maurice, Ph.B., <i>Syracuse</i>	Syracuse, N. Y.
Pannaci, Charles Emonual Eugene.....	Sea Bright, N. J.
Park, William.....	New York
Pascual, William Vincent.....	Brooklyn
Patterson, Henry Stuart, A.B., <i>Williams</i>	New York
Pearson, Charles Edward.....	New Brighton, N. Y.
Pelgram, George Oscar.....	New York
Pilcher, Paul Monroe, B.S., <i>Univ. of Mich</i>	Brooklyn
Pindar, Frederick Standish.....	Middleburg, N. Y.
Pittman, John Green, A.B., <i>Univ. of Georgia</i>	Atlanta, Ga.
Plotz, Isaac Israel.....	New York
Polatsak, Henry Benjamin.....	New York
Porter, Elisha Pender, A.B., <i>Davidson</i>	Rocky Point, N. C.
Quel, Barnett.....	New York

Quinby, William O'Gorman.....	Newark, N. J.
Rabinovitz, Meyer.....	New York
Reichers, George Henry.....	Brooklyn
Reinsberg, Charles Hermann, A.M., <i>Princeton</i>	New York
Reiss, Henry.....	New York
Reynolds, Harry Badger, A.B., <i>Leland Stanford, Junior</i> ..	San Francisco, Cal.
Roos, Lester Laurens.....	New York
Rosensohn, William, A.B., <i>N. Y. City College</i>	Passaic, N. J.
Rowe, Norman Leslie, Jr.....	Jersey City, N. J.
Satterlee, Henry Suydam, A.B., <i>Harvard</i>	New York
Saunders, Norman Brown.....	Forestville, N. Y.
Seelig, Major Gabriel, A.B., <i>Harvard</i>	Helena, Ark.
Shanahan, Robert Henderson.....	Tarrytown, N. Y.
Shangle, Milton Allison.....	Roselle, N. J.
Smith, Fred Willard.....	Richfield Springs, N. Y.
Smith, Harry Victor Aloysius.....	Jersey City, N. J.
Smith, Philip.....	Scranton, Pa.
Spalding, Alfred Baker, A.B., <i>Leland Stanford, Junior</i>	Atchison, Kan.
Stern, Max.....	Newark, N. J.
Stewart, James Fleury.....	Cold Spring Harbor, N. Y.
Stradling, Frank.....	Hamilton, N. Y.
Todd, Luther Anson.....	Atchison, Kan.
Toering, Albert John.....	Newark, N. J.
Tomlinson, Rolland Davis.....	Plainfield, N. J.
Trudeau, Edward Livingston, Jr., A.B., <i>Yale</i>	Saranac Lake, N. Y.
Van Der Clock, Cornelius.....	Paterson, N. J.
Van Doren, George Bickford, A.B., <i>Brown</i>	Chaumont, N. Y.
Van Vranken, Albert Bensen, Ph.B., <i>Union</i>	Brooklyn
Vogel, Karl Max, Ph.G., <i>College of Pharmacy</i>	New York
Vreeland, Clarence Le Fever.....	New York
Walker, Isaac Leander.....	Waverly, N. Y.
Washburn, Philip Carter, A.B., <i>Trinity</i>	Hartford, Conn.
Wason, David Boughton.....	Port Richmond, N. Y.
Watson, Elbert Lycurgus.....	Newport, Ark.
Weber, Leonard Gruner.....	New York
Weed, Vernooy Wayland.....	Brooklyn
Weil, Richard, A.B., <i>Columbia</i>	New York
Weinstein, Julius William.....	New York
Weiss, Louis.....	Newark, N. J.
Weisse, Faneuil Suydam, A.B., <i>Columbia</i>	New York
Welch, John Edgar, A.B., <i>Wesleyan</i>	Bloomington, Ill.
Wells, Jonathan Godfrey.....	Southport, Conn.
Wheeler, William Louis, B.S., <i>Colgate</i>	New York
White, John Francis.....	Rome, N. Y.
Whitefield, William Brown.....	Paducah, Ky.
Whitenack, Miller Royal, B.S., <i>Rutgers</i>	Newark, N. J.
Wilson, Arthur Starkey.....	New York

Wilson, Edward Earl	Dallas, Texas
Wilson, William Caldwell	Blossburg, Pa.
Winchester, Walter Henry	New York
Winter, Allen Lawrence	Bloomington, Ill.
Third-Year Class	179

SECOND-YEAR CLASS

Adelsohn, Jonas	New York
Adler, Hermann Morris, A.B., <i>Harvard</i>	New York
Alexander, Alexander John Aitcheson, A.B., <i>Princeton</i> ..	Spring Station, Ky.
Alter, Julius	New York
Bainton, Joseph Hector, A.B., <i>St. Francis Xavier</i>	New York
Baker, John Lockwood	Brooklyn
Barton, Francis William, B.S., <i>Notre Dame</i>	Danville, Ill.
Bauman, Louis	New York
Benedict, Alfred Chapman, B.S., <i>N. Y. University</i>	New York
Beveridge, James Wallace	New Rochelle, N. Y.
Bill, Philip Worcester, Ph.B., <i>Yale</i>	Bridgeport, Conn.
Bissell, Philip, A.B., <i>Columbia</i>	New York
Bliss, Robert Franklin	Brooklyn
Blue, John Howard, B.S., <i>Univ. of Alabama</i>	Montgomery, Ala.
Bohm, Oscar Henry	Neperan, N. Y.
Bolduan, Charles Frederick, Ph.G., <i>College of Pharmacy</i> ..	Brooklyn
Bookman, Arthur, A.B., <i>Columbia</i>	New York
Brill, Abraham	New York
Britenstool, Harry	New York
Bryant, Robert Rindell	High Bridge, N. J.
Buchtel, Frost Craft	East Orange, N. J.
Buerger, Leo, A.B., <i>N. Y. City College</i>	New York
Buffington, Ralph Edward	Short Hills, N. J.
Bulkley, Lucius Constant, A.B., <i>Columbia</i>	New York
Cairns, Douglas Walker	New York
Carpender, John Neilson, Jr., B.S., <i>Rutgers</i>	New Brunswick, N. J.
Cimiotti, Walter Frank	New York
Cohn, Herman	Newark, N. J.
Condit, Joseph Dayton, A.B., <i>Wabash College</i>	Terre Haute, Ind.
Cooke, Albert Samuel	Whitehall, N. Y.
Cram, George Eversleigh, Ph.B., <i>Yale</i>	Norwalk, Conn.
Creeden, Edward Lawrence, A.B., <i>St. Francis Xavier</i>	New York
Curran, John Dickinson, B.S., <i>Cornell</i>	Binghamton, N. Y.
Curran, Philip John	Portland, Conn.
Darrach, William, A.B., <i>Yale</i>	Germantown, Pa.
Day, Arthur Winfield, A.B., <i>Dartmouth</i>	Brooklyn
de Castro, Raimundo, Jr., A.B., <i>Univ. of Havana</i>	Havana, Cuba
De Long, Faust Stansfield	Richfield Springs, N. Y.
Deming, Dudley Brainard, Ph.B., <i>Yale</i>	Litchfield, Conn.

Duncan, Owsley Bennett.....	Paterson, N. J.
Dunseith, James Gracey.....	New York
Echarte y Martos, Eduardo, A.B., <i>Havana Univ.</i>	Havana, Cuba
Engel, Walter Frederick.....	Brooklyn
Flood, George John Balleray.....	Waterville, Me.
Foehrenbach, Herman P., A.B., <i>N. Y. City College</i>	New York
Frazer, Harvey Thompson, B.S., <i>Princeton</i>	Newark, N. J.
Fulda, Carl.....	Brooklyn
Gabriel, Charles John.....	Newark, N. J.
Gale, Sparrell Simmons, A.B., <i>Roanoke College</i>	Roanoke, Va.
Gibbs, James Philip, A.M., <i>Southwestern Univ.</i>	Huntsville, Tex.
Gillette, Curtienius, A.B., <i>Yale</i>	New York
Goldman, Charles.....	New York
Goodridge, Frederic Grosvenor, A.B., <i>Harvard</i>	New York
Greil, Gaston, B.S., <i>Alabama Polytech. Inst.</i>	Montgomery, Ala.
Gretsch, Bernard Joseph, LL.B., <i>N. Y. University</i>	New York
Griffin, Arthur Benedict, A.B., <i>Columbia</i>	New York
Grossman, Louis.....	New York
Grout, Gerald Harrison.....	Saginaw, Mich.
Gunter, Clarence.....	Montgomery, Ala.
Hart, George Washington.....	Brooklyn
Hartman, William Lewis, Ph.B., <i>N. Y. University</i>	New York
Haussling, Francis Reynolds, B.S., <i>Princeton</i>	Newark, N. J.
Haven, Samuel Carruth, A.B., <i>Amherst</i>	Morristown, N. J.
Hervey, Allan Moore, A.B., <i>Harvard</i>	Boston, Mass.
Hess, Alfred Fabian, A.B., <i>Harvard</i>	New York
Hodgson, Frederick Grady.....	Athens, Ga.
Hume, Eugene Francis.....	Silver Creek, Ky.
Hyde, Oliver Thompson, B.S., <i>Amherst</i>	Ellington, Conn.
Jackson, Frank Hussy, Jr.....	Providence, R. I.
Jacobs, Eshoo, B.S., <i>Oroomiah College</i>	Oroomiah, Persia
Jellinghaus, Charles Frederic, A.B., <i>N. Y. City College</i>	New York
Jones, Willis Bryant.....	Newnan, Ga.
Judd, James Robert, A.B., <i>Yale</i>	Honolulu, Hawaiian Islands
Kramer, David.....	New York
Lehmacher, Frank.....	Newark, N. J.
Levy, David.....	New York
Levy, Isaac Harris.....	New York
Lewis, James Hoyt, A.B., <i>Yale</i>	New York
Leyenberger, Samuel Boughton Whitman.....	Newark, N. J.
Loizeaux, Edward Sanderson.....	Plainfield, N. J.
Mason, Woodruff, B.S., <i>N. H. College of Agriculture</i>	Durham, N. H.
McCarthy, Joseph Francis, Phar.D., <i>College of Pharmacy</i>	Yonkers, N. Y.
McCully, Rob Roy, Ph.G., <i>College of Pharmacy</i>	New York
McEntee, Edward James.....	Brooklyn
McGill, Elisha Leavenworth.....	Petersburg, Va.
McKelvy, James Percy.....	Braddock, Pa.

McKenzie, Edward Townsend, A.B., <i>N. Y. University</i>	Rahway, N. J.
Meagher, John Francis Wallace.....	Brooklyn
Merchant, Marcius Harold, B.P., <i>Brown</i>	Warren, R. I.
Mitchell, Robert Jack.....	New York
Morton, Charles Edward.....	Webster, Mass.
Moynan, William Thomas.....	Brooklyn
Mulcahy, Thomas Aloysius.....	Hartford, Conn.
Newman, Serenus Lazarus.....	New York
Oppenheimer, Bernard Sutro, A.B., <i>Harvard</i>	New York
Phelan, Joseph Maurice, A.B., A.M., <i>St. Francis Xavier</i>	Brooklyn
Pier, Victor Seymour.....	Poughkeepsie, N. Y.
Pierce, Edwin Francis, A.B., <i>Bates</i>	Lewiston, Me.
Pinneo, Frank Wilcox.....	Newark, N. J.
Prentice, Alfred Carlyle, A.B., A.M., <i>Alfred Univ</i> . . .	Adams Centre, N. Y.
Preston, Perry Brower.....	Newark, N. J.
Reinhardt, Emanuel, A.B., <i>N. Y. City College</i>	New York
Reisman, Samuel Charles.....	New York
Reynolds, Gibson, A.B., <i>Univ. of Alabama</i>	Montgomery, Ala.
Reynolds, Michael Thomas.....	New York
Riggio, Louis Dominick.....	New York
Rogers, Andrews, Ph.B., <i>Ohio State Univ</i>	Columbus, O.
Rogers, John J., B.S., <i>Univ. of Wisconsin</i>	Minneapolis, Minn.
Roys, Charles Kirkland, A.B., <i>Princeton</i>	La Crosse, Wis.
Russell, James Isaac, A.B., <i>Univ. of Virginia</i>	Winchester, Va.
Ryan, Philip Francis Xavier, A.B., A.M., <i>St. Francis Xavier</i>	New York
Sandy, William Charles, Jr., A.B., <i>Columbia</i>	Newark, N. J.
Schaeffer, Benjamin Leonard.....	New York
Schenck, Garrie Kouwenhoven Williamson, B.S., <i>Md. Agricul. College</i> , Canarsie, N. Y.	
Schildecker, Charles Bushfield.....	Pittsburgh, Pa.
Schneider, Francis Alphonsus.....	New York
Schulhofer, Samuel.....	New York
Schulte, Hermann von Wechlinger, A.B., <i>Trinity</i>	New York
Schultz, Alfred Paul, A.B., <i>N. Y. City College</i>	New York
Schwartz, Henry William.....	Bloomfield, N. J.
Schweitzer, Henry, Jr.....	New York
Selleck, Ernest Edward, Ph.B., <i>Yale</i>	Norwalk, Conn.
Sharp, James Clayton.....	Brooklyn
Shearer, Leander Howard, A.B., <i>Princeton</i>	New York
Shearman, Robert Willis, A.B., <i>Columbia</i>	Long Island City, N. Y.
Shipman, Clark Smythe.....	New York
Slocum, Harry Britt.....	Long Branch, N. J.
Smith, Charles Hendee, B.S., <i>Cornell</i>	Hartland, Wis.
Spiegel, Leo.....	New York
Spingarn, Alexander, B.S., <i>N. Y. City College</i>	Brooklyn
Stark, Morris, B.S., <i>N. Y. City College</i>	New York
Stark, Nathan, B.S., <i>N. Y. City College</i>	New York

Starr, Robert Sythoff, A.B., <i>Trinity</i>	Hartford, Conn.
Steedly, Benjamin Broadus.....	Athens, Ga.
Stetten, De Witt.....	New York
Strong, Samuel Meredith.....	New Rochelle, N. Y.
Stryker, Edgar de Mott, B.S., <i>Rutgers</i>	Raritan, N. J.
Sutphen, Edward Blair.....	Newark, N. J.
Teahan, William John.....	Holyoke, Mass.
Telfair, John Hamilton, Jr.....	Port Richmond, N. Y.
Thompson, Edward Cameron, A.B., <i>Princeton</i>	Middletown, N. Y.
Todd, George Wilson.....	New York
Vandegrift, George Wonson, A.B., <i>N. Y. City College</i>	New York
Van Ingen, Philip, A.B., <i>Yale</i>	New York
von Deesten, Henry Theodor.....	Hoboken, N. J.
Vreeland, William Norbury.....	Jersey City, N. J.
Walsh, James Joseph, B.S., <i>Manhattan</i>	Westchesier, N. Y.
Wechsler, Abraham Hirsch.....	Brooklyn
Weiss, Frank Henry, Ph.G., <i>College of Pharmacy, Northwestern Univ.</i> , Findlay, O.	
Westcott, Clinton Stevens.....	Providence, R. I.
Weygandt, Fred George.....	Brooklyn
Whitbeck, Sherwood Volkert.....	Hudson, N. Y.
Whitman, William Rush, A.B., <i>Roanoke College</i>	Pulaski City, Va.
Williams, Henry Tilton.....	Seneca Falls, N. Y.
Williams, Irving Dewey, A.B., <i>Hamilton</i>	Turin, N. Y.
Williams, Percy Herbert, A.B., <i>Princeton</i>	New York
Williams, Thomas Marion, A.B., <i>Stanford Univ.</i>	Duo, West Va.
Witter, Orin Russell.....	Chaplin, Conn.
Woglom, William Henry, Jr.....	Brooklyn
Yocum, Joseph Grant.....	Middletown, N. Y.
Ziegel, Herman Fred Lange, B.S., <i>N. Y. City College</i>	New York
Second-Year Class.....	161

FIRST-YEAR CLASS

Adams, John King.....	Summit, N. J.
Ames, Elmer Hempsted.....	Jersey City, N. J.
Andrews, Barton Foote.....	Plantsville, Conn.
Asch, Joseph Jefferson.....	New York
Baff, Max.....	Newark, N. J.
Baker, Charles Frederick.....	Newark, N. J.
Barrell, Almon Colborn, 2d, A.B., <i>Williams</i>	Albion, N. Y.
Barrett, Herbert Henry.....	New York
Barton, Bernard Giffin, A.B., <i>Wesleyan</i>	New York
Beach, Ralph Munson.....	Brooklyn
Beck, Erich Carl Adolph.....	New York
Belcher, Herbert James Blauvelt.....	Paterson, N. J.
Bell, Harold Walsworth.....	New York

Bennett, Henry Wells Newell, A.B., <i>Brown</i>	Manchester, N. H.
Bentz, George Henry.....	New York
Betowski, Leon Stanislaus.....	Waverly, N. Y.
Booth, Franklin Hendrickson, A.B., <i>Yale</i>	Elmhurst, N. Y.
Bracker, Max Henry.....	New York
Bradley, Armitage.....	Sing Sing, N. Y.
Braun, Alfred, A.B., <i>N. Y. City College</i>	New York
Bridge, George Alexander, A.B., <i>Yale</i>	Hazardville, Conn.
Brown, Sherman.....	Bloomfield, Ontario
Busck, Gunni Julius.....	New York
Butts, Arthur Clarkson, Jr.....	New York
Callan, Harold Agustine.....	Yonkers, N. Y.
Chancellor, Charles Hurst.....	New York
Chibas, Lino Sisto Felicisimo.....	Guantanamo, Cuba
Cohn, Isadore, B.S., <i>N. Y. City College</i>	New York
Conklin, Daniel Beckel.....	Dayton, Ohio
Cook, Albert Edward.....	Brooklyn
Corrigan, Henry John Cole, A.B., <i>Brown</i>	Providence, R. I.
Cortright, Charles Bartles.....	Newark, N. J.
Coultas, Aldo Bliss.....	Morristown, N. J.
Covert, Jay Byington, A.B., <i>Hobart</i>	Geneva, N. Y.
Cowperthwait, Frederick Nichols.....	New York
Dalton, William Aloysius, B.S., <i>N. Y. City College</i> ; Ph.D., <i>New York University</i>	New York
Danforth, Edward.....	New York
Davis, James William.....	Livingston Manor, N. Y.
Day, Samuel Sherwood.....	New York
Deutsch, Sigmund.....	New York
Dillon, Charles Joseph, A.B., <i>Manhattan</i>	New York
Dollard, Henry Louis.....	Oyster Bay, L. I., N. Y.
Donald, Douglas.....	Poughkeepsie, N. Y.
Doolittle, Willard Foster.....	Geneseo, N. Y.
Doon, James Henry.....	Worcester, Mass.
Dosh, Louis Philip.....	New York
Eaton, Alvin Richard, Jr.....	Elizabeth, N. J.
Engelke, Charles.....	Waterbury, Conn.
Erdman, Seward, A.B., <i>Princeton</i>	Morristown, N. J.
Estill, Robert Julian, A.B., <i>Kentucky University</i>	Lexington, Conn.
Evans, Archibald Parker.....	Brooklyn
Evans, John Harry, B.Agr., <i>Storr's Agricultural College</i> , So. Woodstock, Conn.	
Farrell, Leo Francis.....	Pawtucket, R. I.
Fewsmith, Joseph Livingston, A.B., <i>Yale</i>	Newark, N. J.
Field, Francis Procter.....	Peoria, Ill.
Fitz-Gerald, Aaron Boylan.....	Newark, N. J.
Fowler, Samuel Robertson.....	Syracuse, N. Y.
Fox, John Crary.....	Rutland, Vt.
Frink, Claude Augustine, A.B., <i>Williams</i>	North Adams, Mass.

Galbraith, Arno William, B.S., <i>Grove City College, Pa.</i>	Natrona, Pa.
Garrigan, Gerald Paul.....	Newark, N. J.
Giffen, Stanley D.....	Hamilton, Ohio
Gillespie, David Halliday Moffat, A.B., <i>Yale</i>	New York
Goldberg, Jacob Montgomery.....	New York
Goodfriend, Nathan.....	New York
Gould, George Clifford.....	Mount Vernon, N. Y.
Gow, Robert Archibald.....	Schuylerville, N. Y.
Gregory, Guernsey Abner.....	Stroudsburg, Pa.
Guenther, Emil Albert	Newark, N. J.
Haber, William John, Ph.G., <i>University of California</i>	San Francisco, Cal.
Hahn, George Henry.....	Newark, N. J.
Hall, Charles Henry.....	Brooklyn
Hamilton, Allen, A.B., <i>Williams</i>	Fort Wayne, Ind.
Hammer, Julius.....	New York
Harran, George Patrick.....	Schenectady, N. Y.
Harrold, Charles Cotton, B.S., <i>Univ. of Georgia</i>	Americus, Ga.
Hart, George Graham.....	Larchmont Manor, N. Y.
Hasking, Arthur Perry.....	Jersey City, N. J.
Hawkins, Norman Louis.....	Islip, N. Y.
Hazay, Max.....	New York
Hennesey, James Francis.....	New York
Henning, Walter Hannibal.....	New York
Herbert, Edward.....	Fall River, Mass.
Herzig, Arthur J.....	New York
Heublein, Arthur Carl.....	Hartford, Conn.
Hirsch, Seth Isaac.....	New York
Hodder, John.....	West New Brighton, S. I., N. Y.
Hyde, James Samuel.....	Fall River, Mass.
Hyer, Walter Eugene.....	Weston, N. J.
Ingraham, Ira Frank, A.B., <i>Colby</i>	Houlton, Me.
Jacob, William Henry.....	Paterson, N. J.
Jacque, Charles Francis.....	Denver, Colo.
Jaynes, Almon Andrus.....	Norwich, N. Y.
Jennings, Frank Dormer.....	Corning, N. Y.
Jones, Samuel Fosdick.....	Cincinnati, Ohio
Keator, Harry Mayham, A.B., <i>Yale</i>	Roxbury, N. Y.
Keenan, Albert Joseph, A.B., <i>Manhattan</i>	Brooklyn
Kendall, Julius.....	Newark, N. J.
Kennelly, William Francis.....	Jersey City, N. J.
Kinney, Virgil Charles.....	Cuba, N. Y.
Knapp, Clinton Beecham, A.B. <i>Chio Wesleyan</i>	Delaware, Ohio
Knight, Robert.....	Seneca Falls, N. Y.
Krauskopf, Henry.....	New York
Krehbiel, Otto Frederick, A.B., <i>N. Y. City College</i>	New York
Kuhr, Ernestus Otto, A.B., <i>St. John's Coll., B'klyn.</i>	Brooklyn
Kurzman, Julius Cæsar.....	New York

Lansing, Edgar Cuyler.....	Poughkeepsie, N. Y.
Lawson, James Herbert.....	New York
Lawson, Leonidas Moreau, Jr.....	New York
Lee, Lawrence.....	Savannah, Ga.
Lifshutz, Nathan.....	New York
Loughran, Elbert Du Bois.....	Kingston, N. Y.
Lovell, John Gibbs.....	Chicago, Ill.
Lowrey, James Henry.....	Newark, N. J.
MacGuire, Daniel Philip.....	New Brighton, S. I.
Martin, James Francis, A.B., <i>St. Francis Xavier</i>	New York
Matthews, Frank Cameron, A.B., <i>Leland Stanford, Junior</i>	New York
McCabe, John.....	New York
McCabe, Thomas Sheridan.....	Newark, N. J.
McChesney, Herman Franklin, B.S., <i>Carleton College</i>	Northfield, Minn.
McFarland, George Henry, Jr., B.S., <i>Princeton</i>	Cambridge, N. Y.
McGrath, John Francis.....	Central Falls, R. I.
McGraw, Theodore Alexander, Jr., B.S., <i>Yale</i>	Detroit, Mich.
McSheehy, Theobald Coleman, A.B., <i>Holy Cross</i>	Whitinsville, Mass.
Mead, Lewis Durant, B.S., <i>Univ. of California</i>	San Francisco, Calif.
Meeker, Harold Denman, A.B., <i>Wesleyan</i>	Orange, N. J.
Meyer, William Henry.....	New York
Milliken, Seth Minot, Jr., A.B., <i>Yale</i>	New York
Mitchell, Archibald, Jr.....	Norwich, Conn.
Monroe, Parley W., B.S., <i>Franklin College</i>	Yonkers, N. Y.
Mosler, Fred Henry.....	New York
Murphy, George Heenan.....	Rosebank, S. I.
Murphy, John Joseph.....	Troy, N. Y.
Murphy, Joseph Denis.....	Worcester, Mass.
O'Neill, Hugh Pius, B.A., <i>St. Joseph's Univ.</i>	New Brunswick, Canada
O'Rourke, Michael Francis, A.B., <i>St. Francis Xavier</i>	New York
Page, Albert William.....	Chappaqua, N. Y.
Pentlarge, Victor Howard.....	Wyoming, Ohio
Pfletschinger, Frederick, B.S., <i>N. Y. City College</i>	New York
Phillips, Frederick George.....	Providence, R. I.
Pollak, Alfred William.....	Waterbury, Conn.
Province, Oran Arnold, A.B., <i>Indiana Univ.</i>	Providence, Ind.
Quell, John Adam, Jr.....	Brooklyn
Radin, Herman Theodore, A.B., <i>N. Y. City College</i>	New York
Rang, Alvin Franklin.....	Brooklyn
Reed, William Clarence, B.S., <i>N. Y. City College</i>	New York
Reynolds, Joseph Lee.....	Valhalla, N. Y.
Rhodes, Goodrich Barbour, A.B., <i>Yale</i>	St. Paul, Minn.
Rice, James Francis, A.B., A.M., <i>New York University</i>	Gnadenhütten, Ohio
Richards, George Walton.....	South Orange, N. J.
Riggs, Austen Fox, A.B., <i>Harvard</i>	New York
Rose, Robert Hugh, A.B., <i>De Pauw Univ.</i>	Carthage, Mo.
Rosenberg, Daniel Davis.....	Brooklyn

Rosenbluth, Benjamin.....	New York
Rosenbluth, Michael.....	New York
Rothe, Harry Emory, Jr.....	Newark, N. J.
Rusling, Van Dyck.....	Paterson, N. J.
Ryan, Joseph Patrick.....	Danbury, Conn.
Saphir, Joseph Fred.....	New York
Satenstein, David Lawrence.....	New York
Scheina, Otto.....	New York
Scheinberg, Louis.....	New York
Seckel, Walter.....	New York
Seff, Isadore.....	Northumberland, Pa.
Siglar, Henry Burr, A.B., <i>Yale</i>	Newburgh, N. Y.
Silk, Morris, A.B., <i>N. Y. City College</i>	New York
Sloan, Andrew.....	Utica, N. Y.
Smith, Archibald Delap, A.B., <i>Yale</i>	Brooklyn
Spitzka, Edward Anthony.....	New York
Stern, Adolph, A.B., <i>N. Y. City College</i>	New York
Stoll, Henry Farnum.....	Port Jervis, N. Y.
Stout, James Stephen.....	Jersey City, N. J.
Sturm, Maurice Arthur.....	New York
Sullivan, John Jerome, A.B., <i>Univ. of Nevada</i>	Virginia City, Nev.
Sunderland, John, Jr., A.B., <i>Univ. of Nevada</i>	Reno, Nev.
Sylvia, Charles Anthony.....	New Bedford, Mass.
Titus, Henry Woodruff, A.B., <i>Williams</i>	Auburn, N. Y.
Van Alstyne, William Becker.....	Plainfield, N. J.
Van Beuren, Frederick Theodore, Jr., A.B., <i>Yale</i>	New York
Van Wart, Frank Brush.....	Brooklyn
Walser, Frederick Theodore.....	New York
Waterhouse, Henry Edwin.....	Pascoag, R. I.
Webster, Charles Edward, Jr., A.B., <i>Lehigh Univ.</i>	South Bethlehem, Pa.
Wells, William Henry, C.E., <i>Princeton</i> ; Ph.G., <i>N. Y. Coll. of Pharmacy</i> , Jersey City, N. J.	
Wendelken, John Henry.....	New York
Westcott, William Beverly.....	Montgomery, Ala.
White, George Douglas.....	Jersey City, N. J.
Whittaker, Neil McLeod.....	Brooklyn
Whittemore, Edward Reed, A.B., <i>Yale</i>	New Haven, Conn.
Wilcox, Herbert Budington, A.B., <i>Yale</i>	Summit, N. J.
Wing, Percy Walton.....	New York
Wolf, William.....	New York
Wollheim, Jacob Lewis.....	New York
Zeiner, Eugene Jerome, Ph.G., <i>N. Y. Coll. of Pharmacy</i>	New York
First Year Class.....	194

SPECIAL STUDENTS

Ashley, Dexter David, M.D., <i>Mo. Med. College, Bell. Hosp. Med. College,</i>	
	West Meriden, Conn.
Bailey, Frederick Randolph, A.B., <i>Princeton</i> ; A.M., M.D., <i>Columbia,</i>	
	Elizabeth, N. J.
Bayles, Howard.....	White Plains, N. Y.
Benjamin, Warren, Jr.....	Denver, Colo.
Bonnell, Clarence Hornbeck, A.B., <i>Rutgers</i>	Port Jervis, N. Y.
Brewster, George Franklin.....	New York
Buckley, William Arthur.....	Liberty, N. Y.
Clark, James Bayard, M.D., <i>Columbia</i>	Elizabeth, N. J.
Dudley, William Lawrence, B.S., <i>Swarthmore</i>	New York
Fisher, Alfred Taylor.....	Brooklyn
Frentzel, Louis Herman Walter.....	Passaic, N. J.
Gardner, Edward Winslow.....	Bloomfield, N. J.
Haas, Arthur.....	New York
Hendrickson, Henry Augustus, M.D., <i>New York University,</i>	
	Atlantic Highlands, N. J.
Kayser, Adolph Aaron.....	New York
McLaren, John Dice, M.Sc., <i>Univ. of Kansas</i> ; M.D., <i>Columbia</i>	New York
Miller, Ethelbert Wesly.....	Nyack, N. Y.
Munger, William Richard, M.D., <i>Yale</i>	New London, Conn.
O'Brien, Frank Athos.....	New York
O'Leary, William Joseph.....	New York
Poulson, Frederick John.....	New York
Schan, George William, Jr.....	New York
Schuessler, Robert Watters.....	New York
Sobel, Frederick.....	New York
Stolper, Joseph Hirsh, M.E., <i>National College of E. T., Lima, O.</i>	New York
Van Saun, Samuel Welling.....	Warwick, N. Y.
Walmsley, Hardie Barr.....	New York
Webb, Frank Reed.....	Massillon, Ohio
Witthaus, Guy.....	New York
Special Students.....	27

SUMMARY

Fourth-Year Class.....	139
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Special Students.....	29
STUDENTS PRIMARILY REGISTERED UNDER THIS FACULTY...	702
STUDENTS FROM OTHER FACULTIES OF THE UNIVERSITY :	
Seniors of the College.....	4
TOTAL.....	706

SCHOOL OF MINES
SCHOOL OF CHEMISTRY
SCHOOL OF ENGINEERING
SCHOOL OF ARCHITECTURE

UNDER THE DIRECTION OF THE FACULTY OF APPLIED
SCIENCE

The following departments are represented in the Faculty :

ARCHITECTURE	GEOLOGY
ASTRONOMY	MATHEMATICS
CHEMISTRY	MECHANICS
CIVIL ENGINEERING	METALLURGY
ELECTRICAL ENGINEERING	MINERALOGY
MECHANICAL ENGINEERING	MINING
SANITARY ENGINEERING	PHYSICS

Officers of the Faculty

HENRY S. MUNROE, E.M., Ph.D.,	
<i>Dean of the Faculty, and Ex-Officio Member of the University Council</i>	
ROBERT PEELE, E.M.	<i>Secretary of the Faculty</i>
FREDERICK R. HUTTON, C.E., Ph.D.,	
<i>Elected Delegate to the University Council</i>	

Standing Committees

COMMITTEE ON ADMISSIONS AND EXAMINATIONS : Professors Munroe, Van Amringe, Hutton, Hamlin, Kemp

COMMITTEE ON SPECIAL STUDENTS : Professors Munroe, Hutton, Hamlin

The Faculty

SETH LOW, LL.D., *President*

CHARLES F. CHANDLER, Ph.D., M.D., LL.D., *Professor of Chemistry*

J. HOWARD VAN AMRINGE, A.M., Ph.D., L.H.D., LL.D., *Professor of Mathematics*

OGDEN N. ROOD, A.M., *Professor of Physics*

HENRY S. MUNROE, E.M., Ph.D., *Professor of Mining and Dean*

WILLIAM R. WARE, B.S., LL.D., *Professor of Architecture*

FREDERICK R. HUTTON, A.M., C.E., Ph.D., *Professor of Mechanical Engineering and Delegate to the University Council*

JOHN KROM REES, A.M., E.M., Ph.D., *Professor of Astronomy and Director of the Observatory*

PIERRE DE PEYSTER RICKETTS, E.M., Ph.D., *Professor of Analytical Chemistry and Assaying*

ALFRED D. F. HAMLIN, A.M., *Adjunct Professor of Architecture*

ALFRED J. MOSES, E.M., Ph.D., *Professor of Mineralogy*

FRANK DEMPSTER SHERMAN, Ph.B., *Adjunct Professor of Architecture*

AMES F. KEMP, A.B., E.M., *Professor of Geology*

ROBERT PEELE, E.M., *Adjunct Professor of Mining and Secretary of the Faculty*

WILLIAM HALLOCK, A.B., Ph.D., *Adjunct Professor of Physics*

FRANCIS B. CROCKER, E.M., Ph.D., *Professor of Electrical Engineering*

MICHAEL I. PUPIN, Ph.D., *Adjunct Professor of Mechanics*

WILLIAM H. BURR, C.E., *Professor of Civil Engineering*

ROBERT S. WOODWARD, C.E., Ph.D., *Professor of Mechanics*

HENRY M. HOWE, A.M., S.B., *Professor of Metallurgy*

CHARLES E. PELLEW, E.M., *Adjunct Professor of Chemistry*

EARL B. LOVELL, C.E., *Adjunct Professor of Civil Engineering*

NOTE: For other officers of instruction see departmental statements and special circulars.

Emeritus Officers

THOMAS EGLESTON, E.M., Ph.D., LL.D., *Emeritus Professor of Mineralogy and Metallurgy*

NATHANIEL L. BRITTON, E.M., Ph.D., *Emeritus Professor of Botany.*

Courses of Instruction

The Faculty of Applied Science offers eleven technical courses leading to professional degrees. These courses consist entirely of required work. Besides this professional instruction the Faculty permits certain subjects to be studied in partial fulfilment of the requirements for the degrees of A.B., A.M., and Ph.D.; and also, under special conditions, admits students who are not candidates for a degree, to pursue special subjects.

UNDERGRADUATE COURSES FOR THE PROFESSIONAL DEGREES

In the School of Mines

1. Mining Engineering	leading to the degree of	E.M.
2. Mining Engineering, Geological Option	" " "	E.M.
3. Metallurgy	" " "	Met.E.

In the School of Engineering

4. Civil Engineering	" " "	C.E.
5. Sanitary Engineering	" " "	C.E.
6. Electrical Engineering	" " "	E.E.
7. Mechanical Engineering	" " "	Mech.E.

In the School of Chemistry

8. Analytical Chemistry	" " "	B.S.
9. Industrial Chemistry	" " "	B.S.
10. Organic Chemistry	" " "	B.S.

In the School of Architecture

11. Architecture	" " "	B.S.
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These courses are intended to meet the requirements of the several professions indicated. Many of the courses permit a certain amount of specialization, particularly in the fourth year. The courses in the School of Mines are so arranged that the student can emphasize the engineering, the metallurgical, or the geological side of his profession, while one of the alternative courses in Mechanical Engineering is designed for those who wish to make a specialty of mine plant and machinery. A course in Sanitary Engineering (leading to the degree of Civil Engineer) is provided for those who wish to prepare themselves for this important branch of civil engineering. The Mechanical Engineering course offers three alternatives in the fourth year, emphasizing respectively the dynamic, the electrical, and the mining side of the mechanical engineer's work. Three courses are offered in Chemistry, for analytical chemists, industrial chemists, and organic chemists respectively. The School of Architecture offers two alternatives in the fourth year—a course of Advanced Architectural History and Design, and a course of Advanced Architectural Engineering and Practice. Full particulars regarding each of these courses of study are contained in special circulars, which will be forwarded on application to the Secretary of the University.

Modifications of Regular Courses

Under proper restrictions, and for reasons of weight, the Faculty will permit a student to substitute one study for another in any of the regular courses (see By-Law 3). By taking advantage of this provision students can fit themselves for special or unusual lines of professional work, without losing their degree.

Special Privileges for Graduate Students

Graduates of colleges or scientific schools are admitted to advanced standing in any of the regular professional courses, as candidates for a degree. Such students are given credit for all courses of which they have had the substantial equivalent, and are permitted to take any course of study for which they are qualified. The lecture hours are so arranged that such students can generally fulfil all the requirements for a degree in one or two years. Such men should make arrangements to attend before entrance, if possible, the required summer classes of the course they intend to take.

Special Students

Graduates of the School of Mines, the School of Chemistry, the School of Engineering, and the School of Architecture, and of other institutions of like grade and standing, may pursue any subjects taught in the schools for which they are properly qualified. In the School of Architecture professional draughtsmen of age and experience are received as special students on favorable terms, and in all the schools permission to pursue special courses is sometimes given, for reasons of weight, to persons of mature age who are not graduates. As a rule, however, special students are not admitted to the elementary courses of the lower classes, and unless unusually well qualified are not desired in the professional courses.

Elective Courses Open to Students in the College

All the studies of the first year, and many of the second-year courses of the School of Mines, the School of Chemistry, the School of Engineering, and of the School of Architecture, are included among the electives offered to students of Columbia College.

Any and all of the studies of the second year in the above schools are open to members of the Senior class in the College who are properly qualified.

By a judicious arrangement of his course of study from the beginning, a graduate of Columbia College can thus enter the third year of any of the above schools.

University Courses in Applied Science

The Faculty of Applied Science has charge of candidates for the degrees of Master of Arts and Doctor of Philosophy who desire to undertake advanced study or special investigations in mining, metallurgy, engineering (civil, sanitary, electrical, and mechanical), or in architecture. Information as to these higher degrees will be found in the departmental statements, as follows :

ARCHITECTURE, page 56

CIVIL AND SANITARY ENGINEER-

ING, page 76

ELECTRICAL ENGINEERING, page 82

MECHANICAL ENGINEER-

ING, page 87

MINING, page 130

METALLURGY, page 124

COURSE IN MINING ENGINEERING

First Year

TRIGONOMETRY (Mathematics 10)—5 hours, first part of first half-year
 ALGEBRA (Mathematics 10)—5 hours, second part of first half-year
 ANALYTICAL GEOMETRY (Mathematics 11)—5 hours, second half-year
 PHYSICS (Physics 1)—3 hours
 CHEMISTRY (Chemistry 1)—4 hours
 EXPERIMENTAL CHEMISTRY (Chemistry 6)—2 hours, and 2 afternoons laboratory, first half-year
 QUALITATIVE ANALYSIS (Chemistry 7)—2 hours, and 4 afternoons alternate weeks laboratory, second half-year
 BOTANY (Botany 8)—2 hours, and 1 afternoon laboratory, first half-year
 ZOOLOGY (Zoology 1)—1 hour, and 1 afternoon laboratory, second half-year
 BLOWPIPE ANALYSIS AND CRYSTALLOGRAPHY (Mineralogy 1 and 2)—2 hours, and 2 afternoons a week laboratory, first half-year
 MINERALOGY (Mineralogy 4)—2 hours, and 1 afternoon laboratory, second half-year
 SURVEYING (Civil Engineering 1)—2 hours, second half-year
 DRAWING (Mechanical Engineering 1)—Drawing-room, afternoons of alternate weeks, second half-year

Summer Vacation

SURVEYING (Civil Engineering 15)—6 weeks field work

Second Year

CALCULUS (Mathematics 6)—3 hours
 PHYSICS (Physics 3)—2 hours, first half-year
 PHYSICAL LABORATORY (Physics 3)—2 hours
 INDUSTRIAL CHEMISTRY (Chemistry 24)—4 hours
 QUANTITATIVE ANALYSIS (Chemistry 12)—2 hours, and 4 afternoons and Saturdays alternate weeks laboratory, first half-year; alternate weeks laboratory, second half-year
 MINERALOGY (Mineralogy 4)—2 hours, and 1 afternoon laboratory, first half-year
 OPTICAL MINERALOGY (Mineralogy 6)—2 hours, and 1 afternoon laboratory for 2 months, second half-year
 GEOLOGY (Geology 2)—3 hours
 PETROGRAPHY (Geology 4)—2 hours, and 1 afternoon laboratory for 2 months, second half-year
 EXCAVATION AND TUNNELLING (Mining 1)—3 hours, first half-year
 BORING AND SHAFT SINKING (Mining 2)—2 hours, second half-year
 SUPPORT OF MINE EXCAVATIONS (Mining 2a)—3 hours for 1 month, second half-year
 DRAWING (Mechanical Engineering 1 and 2)—4 afternoons alternate weeks drawing-room, first half-year
 DESCRIPTIVE GEOMETRY AND DRAWING (Mechanical Engineering 1 and 2)—2 hours, and 4 afternoons alternate weeks drawing-room, second half-year

Summer Vacation

PRACTICAL MINING (Mining 11) *optional*—5 weeks
 PRACTICAL METALLURGY (Metallurgy 20) *optional*—2 weeks
 FIELD GEOLOGY (Geology 13) *optional*—1 week
 SURVEYING (Civil Engineering 16)—6 weeks field work
 RAILROAD SURVEYING (Civil Engineering 17) *optional*—4 weeks field work

See pages 51 to 180 for departmental statements with details of the above courses.

COURSE IN MINING ENGINEERING

Third Year

- ANALYTICAL MECHANICS (Mechanics 1)—3 hours
 ASSAYING (Chemistry 17)—3 hours, first half-year, and 3 afternoons and Saturdays alternate weeks laboratory, throughout the year
 ECONOMIC GEOLOGY (Geology 3)—3 hours
 RESISTANCE OF MATERIALS (Civil Engineering 5)—3 hours, first half-year; 2 hours, second half-year
 TESTING OF MATERIALS (Mechanical Engineering 16)—Afternoon hours laboratory, second half-year
 ENGINEERING OF POWER PLANTS (Mechanical Engineering 11)—1 hour, second half-year
 MINING (Mining 3)—2 hours
 ORE DRESSING (Mining 4)—2 hours
 MINE CONSTRUCTIONS (Mining 7a)—1 hour, second half-year
 METALLURGY (Metallurgy 1 and 2)—3 hours, first half-year
 ELECTRICAL ENGINEERING (Electrical Engineering 5)—1 hour, and 1 afternoon laboratory, second half-year
 GRAPHIC STATICS (Civil Engineering 6)—2 hours, second half-year
 DESIGN, PROBLEMS (Civil Engineering 5 and 6)—2 afternoons, first half-year; afternoons of second half-year
 VACATION CLASS IN MECHANICAL ENGINEERING (Mechanical Engineering 35) *optional*—second half-year

Summer Vacation

- PRACTICAL MINING (Mining 11)—5 weeks
 PRACTICAL METALLURGY (Metallurgy 20) *optional*—2 weeks
 FIELD GEOLOGY (Geology 13)—1 week
 RAILROAD SURVEYING (Civil Engineering 17)—4 weeks field work

Fourth Year

- ECONOMIC GEOLOGY (Geology 3)—3 hours lectures and conferences
 THERMODYNAMICS (Mechanics 4)—3 hours, second half-year
 THE STEAM ENGINE AND ITS ACCESSORIES (Mechanical Engineering 12)—2 hours, first half-year
 THE STEAM BOILER AND ITS ACCESSORIES (Mechanical Engineering 13)—2 hours, second half-year
 HEAT AND ITS APPLICATIONS (Mechanical Engineering 19)—3 hours
 MOTORS (Mechanical Engineering 20)—1 hour, second half-year
 DYNAMICS OF MOTORS (Mechanical Engineering 21)—1 hour, second half-year
 HYDRAULICS (Civil Engineering 12)—2 hours lectures, with problem work, first half-year
 MINE ENGINEERING (Mining 6)—2 hours, first half-year; 1 hour, second half-year
 MINE PLANT (Mining 7)—3 hours, first half-year; 2 hours, second half-year
 MINE SURVEYING (Mining 9)—1 hour, second half-year
 MINE ADMINISTRATION (Mining 10)—1 hour, second half-year
 METALLURGY (Metallurgy 4 and 5)—3 hours
 ORE-DRESSING LABORATORY (Mining 5)—Afternoon work for 3 weeks, second half-year
 DESIGN OF MINE PLANT (Mining 8)—4 afternoons, first half-year; 3 afternoons, second half-year
 PROJECT IN MINING

See pages 51 to 120 for departmental statements with details of the above courses.

COURSE IN MINING ENGINEERING
GEOLOGICAL ALTERNATIVE

(The first three years are the same as in the regular course)

Fourth Year

ECONOMIC GEOLOGY (Geology 3)—3 hours lectures and conferences

* PETROLOGY (Geology 6)—2 hours, and 1 afternoon laboratory

PALÆONTOLOGY (Geology 7)—2 hours, and 1 afternoon laboratory

GEOLOGICAL EXAMINATIONS AND SURVEYS (Geology 10)—1 hour

THERMODYNAMICS (Mechanics 4)—3 hours, second half-year

HEAT AND ITS APPLICATIONS (Mechanical Engineering 19)—3 hours, first half-year.

MINE ENGINEERING (Mining 6)—2 hours, first half-year ; 1 hour, second half-year

MINE PLANT (Mining 7)—3 hours, first half-year ; 2 hours, second half-year

MINE SURVEYING (Mining 9)—1 hour, second half-year

MINE ADMINISTRATION (Mining 10)—1 hour, second half-year

ORE-DRESSING LABORATORY (Mining 5)—Afternoon work for 3 weeks, second half-year

METALLURGY (Metallurgy 4 and 5)—3 hours

PROJECT—2 afternoons and Saturdays

See pages 51 to 180 for departmental statements with details of the above courses.

* Not given in 1898-99.

COURSE IN METALLURGY

First Year

TRIGONOMETRY (Mathematics 10)—5 hours, first part of first half-year

ALGEBRA (Mathematics 10)—5 hours, second part of first half-year

ANALYTICAL GEOMETRY (Mathematics 11)—5 hours, second half-year

PHYSICS (Physics 1)—3 hours

CHEMISTRY (Chemistry 1)—4 hours

EXPERIMENTAL CHEMISTRY (Chemistry 6)—2 hours, and 4 afternoons alternate weeks laboratory, first half-year

QUALITATIVE ANALYSIS (Chemistry 7)—2 hours, and 4 afternoons alternate weeks laboratory, second half-year

BLOWPIPE ANALYSIS AND CRYSTALLOGRAPHY (Mineralogy 1 and 2)—2 hours, and 2 afternoons a week laboratory, first half-year

MINERALOGY (Mineralogy 4)—2 hours, and 1 afternoon laboratory, second half-year

SURVEYING (Civil Engineering 1)—2 hours, second half-year

DRAWING (Mechanical Engineering 1)—Drawing-room, 3 afternoons, first half-year, and afternoons of alternate weeks, second half-year

Summer Vacation

SURVEYING (Civil Engineering 15)—6 weeks field work

Second Year

CALCULUS (Mathematics 6)—3 hours

PHYSICS (Physics 3)—2 hours, first half-year

PHYSICAL LABORATORY (Physics 3)—2 hours

INDUSTRIAL CHEMISTRY (Chemistry 24)—4 hours

QUANTITATIVE ANALYSIS (Chemistry 9)—4 hours, and 4 afternoons and Saturdays alternate weeks laboratory

OPTICAL MINERALOGY (Mineralogy 6)—2 hours, and 1 afternoon laboratory for 2 months, second half-year

PETROGRAPHY (Geology 4)—2 hours, and 1 afternoon laboratory for 2 months, second half-year

MINERALOGY (Mineralogy 4)—2 hours, and 1 afternoon laboratory, first half-year

GEOLOGY (Geology 2)—3 hours

DRAWING (Mechanical Engineering 1 and 2)—2 hours, and 4 afternoons of alternate weeks drawing-room, first half-year; 4 afternoons alternate weeks drawing-room, second half-year

Summer Vacation

PRACTICAL METALLURGY (Metallurgy 20) *optional*—2 weeks

PRACTICAL MINING (Mining 11) *optional*—5 weeks

FIELD GEOLOGY (Geology 13) *optional*—1 week

SURVEYING (Civil Engineering 16)—6 weeks field work

RAILROAD SURVEYING (Civil Engineering 17) *optional*—4 weeks field work

See pages 51 to 180 for departmental statements with details of the above courses.

COURSE IN METALLURGY

Third Year

- ANALYTICAL MECHANICS (Mechanics 1)—3 hours
 ASSAYING (Chemistry 17)—3 hours, and 3 afternoons and Saturdays laboratory, first half-year
 ECONOMIC GEOLOGY (Geology 3)—3 hours
 RESISTANCE OF MATERIALS (Civil Engineering 5)—3 hours, first half-year; 2 hours, second half-year
 ENGINEERING OF POWER PLANTS (Mechanical Engineering 11)—1 hour, second half-year
 MINING (Mining 3)—2 hours
 ORE DRESSING (Mining 4)—2 hours
 MINE CONSTRUCTIONS (Mining 7a)—1 hour, second half-year
 ELECTRICAL ENGINEERING (Electrical Engineering 5)—1 hour, and 1 afternoon laboratory, second half-year
 GENERAL METALLURGY (Metallurgy 1)—4 hours during October, November, and December
 METALLURGY OF IRON AND STEEL (Metallurgy 2)—4 hours during January
 METALLURGY OF IRON AND STEEL (Metallurgy 3)—4 hours, second half-year
 PRACTICAL LABORATORY WORK (Metallurgy 6)—3 afternoons, second half-year
 GRAPHIC STATICS (Civil Engineering 6)—2 hours, second half-year
 DESIGN, PROBLEMS (Civil Engineering 5 and 6)—2 afternoons, first half-year; afternoons of second half-year
 VACATION CLASS IN MECHANICAL ENGINEERING (Mechanical Engineering 35)—*optional*—second half-year

Summer Vacation

- PRACTICAL METALLURGY (Metallurgy 20)—2 weeks
 PRACTICAL MINING (Mining 11)—5 weeks
 FIELD GEOLOGY (Geology 13)—1 week
 RAILROAD SURVEYING (Civil Engineering 17)—4 weeks field work
 VACATION CLASS IN MECHANICAL ENGINEERING (Mechanical Engineering 35)—*optional*

Fourth Year

- ECONOMIC GEOLOGY (Geology 3)—3 hours lectures and conferences
 THE STEAM ENGINE AND ITS ACCESSORIES (Mechanical Engineering 12)—2 hours, first half-year
 THE STEAM BOILER AND ITS ACCESSORIES (Mechanical Engineering 13)—2 hours, second half-year
 MOTORS (Mechanical Engineering 20)—1 hour, second half-year
 DYNAMICS OF MOTORS (Mechanical Engineering 21)—1 hour, second half-year
 ELECTRO-CHEMISTRY (Electrical Engineering 3)—1 hour
 MINE SURVEYING (Mining 9)—1 hour, second half-year
 MINE ADMINISTRATION (Mining 10)—1 hour, second half-year
 METALLURGY OF COPPER (Metallurgy 4)—4 hours during October, November, and December
 METALLURGY OF LEAD, ETC. (Metallurgy 5)—4 hours during January and second half-year
 ORE-DRESSING LABORATORY (Mining 5)—Afternoon work for three weeks, second half-year
 DRAWING (in connection with Project)
 PROJECT

See pages 51 to 180 for departmental statements with details of the above courses.

COURSES IN ANALYTICAL, INDUSTRIAL, AND ORGANIC CHEMISTRY**First Year**

Identical for the three Chemical Courses

TRIGONOMETRY (Mathematics 10)—5 hours, first part of first half-year

ALGEBRA (Mathematics 10)—5 hours, second part of first half-year

ANALYTICAL GEOMETRY (Mathematics 11)—5 hours, second half-year

PHYSICS (Physics 1)—3 hours

CHEMISTRY (Chemistry 1)—4 hours

EXPERIMENTAL CHEMISTRY (Chemistry 6)—2 hours, and 4 afternoons alternate weeks laboratory

QUALITATIVE ANALYSIS (Chemistry 7)—2 hours, and 4 afternoons alternate weeks laboratory

BLOWPIPE ANALYSIS AND CRYSTALLOGRAPHY (Mineralogy 1 and 2)—2 hours, and 2 afternoons a week laboratory, first half-year

MINERALOGY (Mineralogy 4)—2 hours, and 3 hours laboratory, second half-year

DRAWING (Mechanical Engineering 1)—1 hour first half-year, and drawing-room throughout the year

Summer Vacation

SUMMER WORK, a set of drawings on subjects to be assigned by the Instructor in Drawing, and other work assigned by the Professor of Chemistry

Second Year

Identical for the three Chemical Courses

CALCULUS (Mathematics 6)—3 hours

PHYSICS (Physics 3)—2 hours, first half-year

PHYSICAL LABORATORY (Physics 3)—2 hours

ORGANIC CHEMISTRY, ELEMENTARY (Chemistry 20)—3 hours

INDUSTRIAL CHEMISTRY (Chemistry 24)—4 hours

QUANTITATIVE ANALYSIS (Chemistry 9)—4 hours, and 4 afternoons and Saturdays laboratory

PHYSICAL CHEMISTRY (Chemistry 3)—2 hours, and 3 hours laboratory, second half-year

MINERALOGY (Mineralogy 4)—2 hours, and 3 hours laboratory, first half-year

Summer Vacation

SUMMER SCHOOL IN CHEMISTRY, and Memoir on some subject to be assigned by the Professor of Chemistry

See pages 51 to 180 for departmental statements with details of the above courses.

Third Year**Course A.—Analytical Chemistry****Course C.—Organic Chemistry**

THEORETICAL MECHANICS (Mechanics 3)—2 hours

INDUSTRIAL CHEMISTRY (Chemistry 25)—4 hours

INDUSTRIAL CHEMISTRY, LABORATORY (Chemistry 26)—3 afternoons, first half-year

ASSAYING (Chemistry 17)—3 hours, and 2 afternoons and Saturdays laboratory, first half-year

QUANTITATIVE ANALYSIS (Chemistry 13)—4 hours, and 4 afternoons and Saturdays laboratory, second half-year

GENERAL METALLURGY (Metallurgy 1)—3 hours for 3 months, first half-year

METALLURGY OF IRON AND STEEL (Metallurgy 2)—3 hours for 1 month, first half-year

METALLURGY OF LEAD, ETC. (Metallurgy 5)—3 hours for 1 month, first half-year ; 3 hours, second half-year

Summer Vacation

SUMMER SCHOOL IN CHEMISTRY, and Memoir on some subject to be assigned by the Professor of Chemistry

SUMMER SCHOOL IN METALLURGY (Metallurgy 20)

Third Year**Course B.—Industrial Chemistry**

THEORETICAL MECHANICS (Mechanics 3)—2 hours

INDUSTRIAL CHEMISTRY (Chemistry 25)—4 hours

INDUSTRIAL CHEMISTRY, LABORATORY (Chemistry 26 and 27)—3 afternoons, first half-year ; 2 afternoons, second half-year

ASSAYING (Chemistry 17)—3 hours, and 2 afternoons and Saturdays laboratory, first half-year

QUANTITATIVE ANALYSIS (Chemistry 13)—4 hours, and 3 afternoons and Saturdays laboratory, second half-year

GENERAL METALLURGY (Metallurgy 1)—3 hours for 3 months, first half-year

METALLURGY OF IRON AND STEEL (Metallurgy 2)—3 hours for 1 month, first half-year

METALLURGY OF LEAD, ETC. (Metallurgy 5)—3 hours for 1 month, first half-year ; 3 hours, second half-year

Summer Vacation

SUMMER SCHOOL IN CHEMISTRY, and Memoir on some subject to be assigned by the Professor of Chemistry

SUMMER SCHOOL IN METALLURGY (Metallurgy 20)

See pages 51 to 180 for departmental statements with details of the above courses.

Fourth Year

Course A.—Analytical Chemistry

ELEMENTARY THERMODYNAMICS (Mechanics 5)—2 hours, first half-year

INDUSTRIAL CHEMISTRY (Chemistry 25)—4 hours

INDUSTRIAL CHEMISTRY, LABORATORY (Chemistry 27)—2 afternoons, second half-year

ANALYTICAL CHEMISTRY (Chemistry 14)—2 hours, through year, and 3 afternoons and Saturdays laboratory, second half-year

ORGANIC CHEMISTRY (Chemistry 21)—4 hours, first half-year, and 3 hours, second half-year, and at least 22 hours laboratory, first half-year

PHYSICAL CHEMISTRY (Chemistry 4)—3 hours throughout year, and 1 laboratory exercise, second half-year

ELECTRO-CHEMISTRY (Electrical Engineering 3)—1 hour

METALLURGY OF COPPER (Metallurgy 4)—3 hours for 3 months, first half-year

THESIS, on some chemical subject approved by the head of the department

Fourth Year

Course B.—Industrial Chemistry

ELEMENTARY THERMODYNAMICS (Mechanics 5)—2 hours, first half-year

INDUSTRIAL CHEMISTRY (Chemistry 25)—4 hours

INDUSTRIAL CHEMISTRY, LABORATORY (Chemistry 28)—5 afternoons, second half-year

ORGANIC CHEMISTRY (Chemistry 21)—4 hours, first half-year, and 3 hours, second half-year, and at least 22 hours laboratory, first half-year

PHYSICAL CHEMISTRY (Chemistry 4)—3 hours, throughout year, and 1 afternoon laboratory, first half-year

ELECTRO-CHEMISTRY (Electrical Engineering 3)—1 hour, first half-year

ELECTRICAL ENGINEERING (Electrical Engineering 5)—1 hour, and 2 hours laboratory, second half-year

ENGINEERING OF POWER PLANTS (Mechanical Engineering 11, 12, and 13)—2 hours, first half-year, and 3 hours, second half-year

METALLURGY OF COPPER (Metallurgy 4)—3 hours for 3 months, first half-year

THESIS, on some chemical subject approved by the head of the department

Fourth Year

Course C.—Organic Chemistry

ELEMENTARY THERMODYNAMICS (Mechanics 5)—2 hours, first half-year

INDUSTRIAL CHEMISTRY (Chemistry 25)—4 hours

INDUSTRIAL CHEMISTRY, LABORATORY (Chemistry 27)—3 afternoons, second half-year

ORGANIC CHEMISTRY (Chemistry 21)—6 hours, first half-year, and 5 hours, second half-year, and at least 22 hours laboratory, first half-year, and 3 afternoons and Saturdays laboratory, second half-year

PHYSICAL CHEMISTRY (Chemistry 4)—3 hours, throughout the year, and one laboratory exercise, second half-year

ELECTRO-CHEMISTRY (Electrical Engineering 3)—1 hour

PHYSICAL CRYSTALLOGRAPHY (Mineralogy 8)—1 hour laboratory

THESIS, on some chemical subject approved by the head of the department

See pages 51 to 180 for departmental statements with details of the above courses.

COURSE IN CIVIL ENGINEERING

First Year

TRIGONOMETRY (Mathematics 10)—5 hours, first part of first half-year

ALGEBRA (Mathematics 10)—5 hours, second part of first half-year

ANALYTICAL GEOMETRY (Mathematics 11)—5 hours, second half-year

PHYSICS (Physics 1)—3 hours

CHEMISTRY (Chemistry 1)—4 hours

EXPERIMENTAL CHEMISTRY (Chemistry 6)—2 hours, and four afternoons alternate weeks laboratory, first half-year

QUALITATIVE ANALYSIS (Chemistry 7)—2 hours, and 3 afternoons and Saturdays of alternate weeks laboratory, second half-year

BOTANY (Botany 8)—1 hour, and 1 afternoon laboratory work, first half-year

SURVEYING (Civil Engineering 1)—2 hours, second half-year

DRAWING (Mechanical Engineering 1)—1 hour, and drawing-room, first half-year

DESCRIPTIVE GEOMETRY AND DRAWING (Mechanical Engineering 1)—2 hours, and drawing-room, second half-year

SHOP WORK (Mechanical Engineering 3 and 4)—1 hour, and 1 afternoon in shops

Summer Vacation

SURVEYING (Civil Engineering 15)—6 weeks field work

Second Year

CALCULUS (Mathematics 6)—3 hours

PHYSICS (Physics 3)—2 hours, first half-year

PHYSICAL LABORATORY (Physics 3)—2 hours

INDUSTRIAL CHEMISTRY (Chemistry 24)—4 hours

MINERALS OF BUILDING STONES (Mineralogy 5)—2 hours, and 1 afternoon laboratory

ELEMENTS OF ELECTRICAL ENGINEERING (Electrical Engineering 7)—1 hour, first half-year, and 2 hours, second half-year

ROAD ENGINEERING (Civil Engineering 2)—2 hours, first half-year

WATER SUPPLY AND IRRIGATION (Civil Engineering 3)—2 hours, second half-year

GRAPHICS AND DRAWING (Mechanical Engineering 1 and 2)—2 hours, and drawing-room, first half-year

DRAWING (Mechanical Engineering 1 and 2)—2 hours, and drawing-room, second half-year

SHOP WORK (Mechanical Engineering 6 and 7)—1 hour, and 1 afternoon in shop

Summer Vacation

SURVEYING (Civil Engineering 16)—6 weeks field work

See pages 51 to 180 for departmental statements with details of the above courses.

COURSE IN CIVIL ENGINEERING

Third Year

ANALYTICAL MECHANICS (Mechanics 1)—3 hours
 GEOLOGY (Geology 2)—3 hours
 GEODESY (Astronomy 3)—2 hours
 RESISTANCE OF MATERIALS (Civil Engineering 5)—3 hours, first half-year ;
 2 hours, second half-year
 ENGINEERING OF POWER PLANTS (Mechanical Engineering 11)—1 hour,
 second half-year
 MASONRY STRUCTURES (Civil Engineering 4)—1 hour
 THEORY OF TRUSSES (Civil Engineering 7)—2 hours, second half-year
 SEWAGE DISPOSAL (Civil Engineering 8)—2 hours, first half-year
 GRAPHIC STATICS (Civil Engineering 6)—2 hours, second half-year
 THEORY OF RAILROAD SURVEYING (Civil Engineering 14)—1 hour
 ELECTRICAL ENGINEERING (Electrical Engineering 5)—1 hour, and 1 after-
 noon laboratory, second half-year
 DESIGN, PROBLEMS (Civil Engineering 4, 5, 6, and 7)—Afternoon work
 VACATION CLASS IN MECHANICAL ENGINEERING (Mechanical Engineering
 35) *optional*—Second half-year

Summer Vacation

PRACTICAL GEODESY (Astronomy 3)—6 weeks field work
 RAILROAD SURVEYING (Civil Engineering 17)—4 weeks field work

Fourth Year

GEODESY (Astronomy 3)—2 hours, first half-year
 DESIGN OF BRIDGES AND BUILDINGS (Civil Engineering 10)—2 hours
 HYDRAULICS (Civil Engineering 12)—2 hours, first half-year
 THERMODYNAMICS (Mechanics 4)—3 hours, second half-year
 THE STEAM ENGINE AND ITS ACCESSORIES (Mechanical Engineering 12)—
 2 hours, first half-year
 THE STEAM BOILER AND ITS ACCESSORIES (Mechanical Engineering 13)—
 2 hours, second half-year
 HEAT AND ITS APPLICATIONS (Mechanical Engineering 19)—3 hours, first
 half-year
 MOTORS (Mechanical Engineering 20)—1 hour, second half-year
 DYNAMICS OF MOTORS (Mechanical Engineering 21)—1 hour, second half-
 year
 MACHINERY AND MECHANISM (Mechanical Engineering 18)—2 hours
 METALLURGY OF IRON AND STEEL (Metallurgy 3)—3 hours, second half-year
 PUMPS AND PUMPING ENGINES (Mechanical Engineering 27)—Course
 of 6 lectures, second half-year
 FOUNDATIONS (Civil Engineering 11)—2 hours, first half-year
 * EXCAVATION AND TUNNELLING (Mining 1)—3 hours, first half-year
 SEWERS AND HARBORS (Civil Engineering 13)—2 hours, second half-year
 RAILROAD ENGINEERING (Mechanical Engineering 26)—3 hours, first half
 of first half-year ; (Civil Engineering 9)—3 hours, second half of first half-
 year ; 3 hours, second half-year
 DESIGN, PROBLEMS (Civil Engineering 10, 11, 12, and 13)—Afternoon
 work
 PROJECT OR THESIS, on some civil-engineering subject approved by the head
 of the department

See pages 51 to 180 for departmental statements with details of the above courses.

* Not given in 1898-99.

COURSE IN SANITARY ENGINEERING**First Year**

Identical with the first year of the course in Civil Engineering

Second Year

CALCULUS (Mathematics 6)—3 hours

PHYSICS (Physics 3)—2 hours

PHYSICAL LABORATORY (Physics 3)—2 hours

INDUSTRIAL CHEMISTRY (Chemistry 24)—4 hours

MINERALS OF BUILDING STONES (Mineralogy 5)—2 hours, and 1 afternoon laboratory

ROAD ENGINEERING (Civil Engineering 2)—2 hours

WATER SUPPLY AND IRRIGATION (Civil Engineering 3)—2 hours, second half-year

SANITARY ENGINEERING OF BUILDINGS (Civil Engineering 18)—2 hours

*GENERAL PRINCIPLES OF HYGIENE AND SANITARY SCIENCE (Civil Engineering 19)—2 hours, second half-year

*GENERAL BIOLOGY—2 hours, second half-year

GRAPHICS AND DRAWING (Mechanical Engineering 1 and 2)—2 hours, and drawing-room

Summer Vacation

SURVEYING (Civil Engineering 16)—6 weeks field work

See pages 51 to 180 for departmental statements with details of the above courses.

* These courses may be modified and rearranged.

COURSE IN SANITARY ENGINEERING

Third Year

- ANALYTICAL MECHANICS (Mechanics 1)—3 hours
 GEOLOGY (Geology 2)—3 hours
 GEODESY (Astronomy 3)—2 hours
 RESISTANCE OF MATERIALS (Civil Engineering 5)—3 hours, first half-year ;
 2 hours, second half-year
 * MICROSCOPY—2 hours, and 2 hours laboratory
 ENGINEERING OF POWER PLANTS (Mechanical Engineering 11)—1 hour, second half-year
 MASONRY STRUCTURES (Civil Engineering 4)—1 hour
 THEORY OF TRUSSES (Civil Engineering 7)—2 hours, second half-year
 SEWAGE DISPOSAL (Civil Engineering 8)—2 hours, first half-year
 GRAPHIC STATISTICS (Civil Engineering 6)—2 hours, second half-year
 THEORY OF RAILROAD SURVEYING (Civil Engineering 14)—1 hour
 ELECTRICAL ENGINEERING (Electrical Engineering 5)—1 hour, and 1 afternoon laboratory, second half-year
 DESIGN, PROBLEMS (Civil Engineering 4, 5, 6, and 7)—Afternoon work
 VACATION CLASS IN MECHANICAL ENGINEERING (Mechanical Engineering 35) *optional*—Second half-year

Summer Vacation

- PRACTICAL GEODESY (Astronomy 3)—6 weeks field work
 RAILROAD SURVEYING (Civil Engineering 17)—4 weeks field work

Fourth Year

- HEATING AND VENTILATION (Civil Engineering 20)—2 hours
 DESIGN OF BRIDGES AND BUILDINGS (Civil Engineering 10)—2 hours, first half-year
 HYDRAULICS (Civil Engineering 12)—2 hours, first half-year
 THERMODYNAMICS (Mechanics 4)—3 hours, second half-year
 THE STEAM ENGINE AND ITS ACCESSORIES (Mechanical Engineering 12)—2 hours, first half-year
 THE STEAM BOILER AND ITS ACCESSORIES (Mechanical Engineering 13)—2 hours, second half-year
 HEAT AND ITS APPLICATIONS (Mechanical Engineering 19)—3 hours, first half-year
 MOTORS (Mechanical Engineering 20)—1 hour, second half-year
 DYNAMICS OF MOTORS (Mechanical Engineering 21)—1 hour, second half-year
 * MICROBIOLOGY—2 hours, and 2 hours laboratory
 PUMPS AND PUMPING ENGINES (Mechanical Engineering 27)—Course of 6 lectures, second half-year
 FOUNDATIONS (Civil Engineering 11)—2 hours, first half-year
 DRAINAGE OF COUNTRY DISTRICTS AND TOWNS (Civil Engineering 21)—2 hours, second half-year
 SEWERS AND HARBORS (Civil Engineering 13)—2 hours, second half-year
 RAILROAD ENGINEERING (Mechanical Engineering 26)—3 hours, first half of first half-year ; (Civil Engineering 9)—3 hours, second half of first half-year ; 3 hours, second half-year
 DESIGN, PROBLEMS (Civil Engineering 10, 11, 12, and 13)—Afternoon work
 PROJECT OR THESIS, on some civil-engineering or sanitary-engineering subject approved by the head of the department

See pages 51 to 180 for departmental statements with details of the above courses.

* These courses may be modified and rearranged.

COURSE IN ELECTRICAL ENGINEERING

First Year

TRIGONOMETRY (Mathematics 10)—5 hours, first part of first half-year

ALGEBRA (Mathematics 10)—5 hours, second part of first half-year

ANALYTICAL GEOMETRY (Mathematics 11)—5 hours, second half-year

PHYSICS (Physics 1)—3 hours

CHEMISTRY (Chemistry 1)—4 hours

EXPERIMENTAL CHEMISTRY (Chemistry 6)—2 hours, and 2 afternoons laboratory, first half-year

QUALITATIVE ANALYSIS (Chemistry 7)—2 hours, and 2 afternoons laboratory, second half-year

DESCRIPTIVE GEOMETRY AND DRAWING (Mechanical Engineering 1)—2 hours, and 2 afternoons drawing-room

SHOP WORK (Mechanical Engineering 3 and 4)—1 afternoon in shop

Summer Vacation

SUMMER WORK, a set of drawings on subjects to be assigned by the Instructor in Drawing

NOTE—For those students who desire additional manual training there is a Summer Class in Shop Work, at the Teachers College (Mechanical Engineering 5), for three weeks (100 hours), in June, provided that not less than twenty students present themselves for this instruction. The fee for this extra instruction is fifteen dollars

Second Year

CALCULUS (Mathematics 6)—3 hours

PHYSICS (Physics 3)—2 hours

PHYSICAL LABORATORY (Physics 3)—6 hours

INDUSTRIAL CHEMISTRY (Chemistry 24)—3 hours

QUANTITATIVE ANALYSIS (Chemistry 11)—1 hour, and 3 hours laboratory, first half-year

PROPERTIES OF MATERIALS (Mechanical Engineering 10)—2 hours, second half-year

ELEMENTS OF ELECTRICAL ENGINEERING (Electrical Engineering 7)—1 hour, first half-year; 2 hours, second half-year

ENGINEERING OF POWER PLANTS (Mechanical Engineering 11)—1 hour, second half-year

GRAPHICS AND DRAWING (Mechanical Engineering 1 and 2)—2 hours, and 2 afternoons drawing-room

SHOP WORK (Mechanical Engineering 6 and 7)—1 hour, and 1 afternoon in shop

Summer Vacation

MEMOIR, on subject to be assigned by the Professor of Electrical Engineering

See pages 51 to 180 for departmental statements with details of the above courses.

COURSE IN ELECTRICAL ENGINEERING

Third Year

ANALYTICAL MECHANICS (Mechanics 1)—3 hours

RESISTANCE OF MATERIALS (Civil Engineering 5)—3 hours, and 2 afternoons, first half-year; 2 hours, and 2 afternoons, second half-year.

PROPERTIES OF MATERIALS (Mechanical Engineering 10)—2 hours, first half-year

TESTING OF MATERIALS (Mechanical Engineering 16)—1 afternoon laboratory, part of each half-year

MECHANICAL ENGINEERING LABORATORY (Mechanical Engineering 17)—1 afternoon, part of each half-year

THE STEAM ENGINE AND ITS ACCESSORIES (Mechanical Engineering 12)—2 hours, first half-year

THE STEAM BOILER AND ITS ACCESSORIES (Mechanical Engineering 13)—2 hours, second half-year

DYNAMO AND MOTOR PRACTICE (Electrical Engineering 1)—3 hours, first half-year

TELEGRAPH AND TELEPHONE (Electrical Engineering 6)—1 hour

DIRECT-CURRENT LABORATORY (Electrical Engineering 10)—2 afternoons

ELECTRIC LIGHTING (Electrical Engineering 4)—3 hours, second half-year

THEORY OF DYNAMO AND MOTOR (Mechanics 6)—3 hours, first half-year; (Mechanics 7)—3 hours, second half-year

DRAWING (Mechanical Engineering 22)—1 afternoon

VACATION CLASS IN MECHANICAL ENGINEERING (Mechanical Engineering 35) *optional*—Second half-year

Summer Vacation

ORIGINAL DESIGN in detail, with calculations and working drawings, of a specially designed dynamo or motor; also a critical description of some existing electrical plant

Fourth Year

THERMODYNAMICS (Mechanics 4)—3 hours, second half-year

HEAT AND ITS APPLICATIONS (Mechanical Engineering 19)—3 hours, and laboratory, first half-year

MOTORS (Mechanical Engineering 20)—1 hour, second half-year

DYNAMICS OF MOTORS (Mechanical Engineering 21)—1 hour, second half-year

MACHINERY AND MECHANISM (Mechanical Engineering 18)—2 hours

METALLURGY (Metallurgy 3)—3 hours, second half-year

ELECTRO-CHEMISTRY (Electrical Engineering 3)—1 hour, first half-year; 1 hour, second half-year

ELECTRICAL ENGINEERING LABORATORIES (Electrical Engineering 11, 12, and 21)—5 afternoons, first half-year; work in connection with graduation thesis, second half-year

ELECTRIC POWER (Electrical Engineering 2)—2 hours, first half-year

See pages 51 to 180 for departmental statements with details of the above courses.

COURSE IN ELECTRICAL ENGINEERING

Fourth Year (*Continued*)

THEORY OF ALTERNATORS AND TRANSFORMERS (Mechanics 8)—3 hours, first half-year

ELECTRIC RAILWAY (Electrical Engineering 8)—2 hours, second half-year

MANAGEMENT OF ELECTRICAL PLANTS (Electrical Engineering 22)—2 hours, second half-year

ELECTRICAL DISTRIBUTION (Electrical Engineering 23)—2 hours, first half-year

THEORY OF VARIABLE CURRENTS (Mechanics 9)—2 hours, second half-year

ADVANCED THEORY OF ELECTRICITY (Mechanics 14, 14a, 15, or 17), *optional*

DRAWING, PROBLEMS, AND DESIGN (in connection with Electrical Engineering 2 and 3)—first half-year ; (in connection with Electrical Engineering 2, 3, and 8), second half-year

THESIS, ORIGINAL INVESTIGATION, OR DESIGN, the subject of which must be approved by the Professor of Electrical Engineering

See pages 51 to 180 for departmental statements with details of the above courses.

COURSES IN MECHANICAL ENGINEERING

First Year

TRIGONOMETRY (Mathematics 10)—5 hours, first part of first half-year

ALGEBRA (Mathematics 10)—5 hours, second part of first half-year

ANALYTICAL GEOMETRY (Mathematics 11)—5 hours, second half-year

PHYSICS (Physics 1)—3 hours

PHYSICAL LABORATORY (Physics 3)—5 hours, first half-year ; 3 hours, second half-year

CHEMISTRY (Chemistry 1)—4 hours, first half-year ; 3 hours, second half-year

EXPERIMENTAL CHEMISTRY (Chemistry 6)—2 hours, and Friday afternoon and Saturday morning laboratory, first half-year

QUALITATIVE ANALYSIS (Chemistry 7)—2 hours, and Friday afternoon and Saturday morning laboratory, second half-year

DESCRIPTIVE GEOMETRY AND DRAWING (Mechanical Engineering 1)—2 hours, and 2 afternoons drawing-room

SHOP WORK (Mechanical Engineering 3 and 4)—Equivalent to 2 afternoons in shop

Summer Vacation

SUMMER CLASS IN SHOP WORK (Mechanical Engineering 5)—100 hours in not over 3 weeks in June

MEMOIR OR DRAWINGS, on subjects to be assigned by the Instructor in Drawing (Mechanical Engineering 36)

Second Year

CALCULUS (Mathematics 6)—3½ hours

PHYSICS (Physics 3)—2 hours

PHYSICAL LABORATORY (Physics 3)—2 hours

INDUSTRIAL CHEMISTRY (Chemistry 24)—3 hours

PROPERTIES OF MATERIALS (Mechanical Engineering 10)—2 hours, second half-year

ENGINEERING OF POWER PLANTS (Mechanical Engineering 11)—1 hour, second half-year

ELEMENTS OF ELECTRICAL ENGINEERING (Electrical Engineering 7)—1 hour, first half-year ; 2 hours, second half-year

GRAPHICS AND DRAWING (Mechanical Engineering 1 and 2)—2 hours, and 2 afternoons drawing-room

SHOP WORK (Mechanical Engineering 6 and 7)—1 hour and 3 afternoons, and Saturdays shop practice

Summer Vacation

SUMMER CLASS IN SHOP WORK (Mechanical Engineering 8)—100 hours in not over 3 weeks in June

MEMOIR, on some subject to be assigned by the Professor of Mechanical Engineering (Mechanical Engineering 37)

See pages 51 to 180 for departmental statements with details of the above courses.

Third Year

ANALYTICAL MECHANICS (Mechanics 1)—3 hours

THE STEAM ENGINE (Mechanical Engineering 12)—2 hours; (Mechanical Engineering 15)—Laboratory practice, first half-year

THE STEAM BOILER (Mechanical Engineering 13)—2 hours; (Mechanical Engineering 14)—Laboratory practice, second half-year

MACHINERY AND MECHANISM (Mechanical Engineering 18)—2 hours

MACHINE DESIGN (Mechanical Engineering 22)—1 hour

RESISTANCE OF MATERIALS (Civil Engineering 5)—3 hours and 2 afternoons, first half-year, and 2 hours and 2 afternoons, second half-year

GRAPHICAL STATICS (Civil Engineering 6)—2 hours, and 2 afternoons drawing-room, part of second half-year

TESTING OF MATERIALS OF ENGINEERING (Mechanical Engineering 16)—2 afternoons, part of each half-year, and Saturdays laboratory work

MECHANICAL ENGINEERING LABORATORY (Mechanical Engineering 17)—2 afternoons, part of each half-year

DYNAMO AND MOTOR PRACTICE (Electrical Engineering 1)—3 hours, first half-year

ELECTRIC LIGHTING (Electrical Engineering 4)—3 hours, second half-year

METALLURGY OF IRON AND STEEL (Metallurgy 3)—3 hours, second half-year

ELECTRICAL ENGINEERING LABORATORY (Electrical Engineering 10)—2 afternoons, part of each half-year

DRAWING (Mechanical Engineering 22)—1 afternoon

VACATION CLASS IN MECHANICAL ENGINEERING (Mechanical Engineering 35) *optional*

Summer Vacation

MEMOIR, on subjects to be assigned by the Professor of Mechanical Engineering (Mechanical Engineering 38)

See pages 51 to 180 for departmental statements with details of the above courses.

DYNAMIC ENGINEERING ALTERNATIVE, OR COURSE A

NOTE—The first three years are the same for all Alternatives

Fourth Year

(To be offered in 1900-1901)

THERMODYNAMICS (Mechanics 4)—3 hours, second half-year

HEAT AND ITS APPLICATIONS (Mechanical Engineering 19)—3 hours, and laboratory practice, first half-year

PUMPS, PUMPING, AND SPECIAL ENGINES (Mechanical Engineering 27)—Special lectures, latter part of second half-year

DYNAMICS OF MOTORS (Mechanical Engineering 21)—2 hours, second half-year

MACHINE DESIGN (Mechanical Engineering 22)—1 hour, first half-year

RAILWAY MOTIVE POWER AND MACHINERY (Mechanical Engineering 26)—3 hours, first part of first half-year; (Civil Engineering 9)—3 hours, second part of first half-year, and second half-year

HYDRAULICS (Civil Engineering 12)—2 hours, first half-year

MASONRY STRUCTURES (Civil Engineering 4)—1 hour

STEAM-ENGINE DESIGN (Mechanical Engineering 28)—2 hours, second half-year

VALVE-GEARING FOR ENGINES (Mechanical Engineering 23)—1 hour, and drawing-room, second half-year

WORK-SHOP ECONOMICS AND SPECIFICATIONS (Mechanical Engineering 30)—1 hour, second half-year

SHOP AND FACTORY ORGANIZATION AND MANAGEMENT (Mechanical Engineering 29)—1 hour, second half-year

MINE PLANT (Mining 7)—3 hours, first half-year; 2 hours, second half-year

ELECTRIC POWER (Electrical Engineering 2)—3 hours, first half-year

ELECTRIC RAILWAY (Electrical Engineering 8)—2 hours, second half-year

HYDRAULIC MOTORS LABORATORY $\frac{1}{2}$ (Mechanical Engineering 25), second half-year

HEAT AND STEAM ENGINEERING LABORATORY (Mechanical Engineering 24)—In connection with thesis work

DRAWING (Mechanical Engineering 22 and 28)

THESIS, original investigation or professional problem on a subject approved by the Professor of Mechanical Engineering

See pages 51, to 180 for departmental statements with details of the above courses.

ELECTRICAL ALTERNATIVE, OR COURSE B

NOTE—The first three years are the same for all Alternatives

Fourth Year

(To be offered in 1900-1901)

THERMODYNAMICS (Mechanics 4)—3 hours, second half-year

HEAT AND ITS APPLICATIONS (Mechanical Engineering 19)—3 hours, and laboratory practice, first half-year

PUMPS, PUMPING, AND SPECIAL ENGINES (Mechanical Engineering 27)—Special lectures, latter part of second half-year

DYNAMICS OF MOTORS (Mechanical Engineering 21)—2 hours, second half-year

RAILWAY MOTIVE POWER AND MACHINERY (Mechanical Engineering 26)—3 hours, first part of first half-year ; (Civil Engineering 9)—3 hours, latter part of first half-year, and second half-year

WORK-SHOP ECONOMICS AND SPECIFICATIONS (Mechanical Engineering 30)—1 hour, second half-year

STEAM-ENGINE DESIGN (Mechanical Engineering 28)—2 hours, second half-year

SHOP AND FACTORY ORGANIZATION AND MANAGEMENT (Mechanical Engineering 29)—1 hour, second half-year

HYDRAULICS (Civil Engineering 12)—2 hours, first half-year

ELECTRIC POWER (Electrical Engineering 2)—3 hours, first half-year

ELECTRICAL ENGINEERING (Electrical Engineering 3 and 4)—1 hour, first half-year, and 3 hours, second half-year

ELECTRICAL ENGINEERING (Electrical Engineering 6)—1 hour

THEORY OF ALTERNATING CURRENTS (Mechanics 8 and 9)—3 hours, first half-year

ELECTRIC RAILWAY (Electrical Engineering 8)—2 hours, second half-year

HYDRAULIC MOTORS LABORATORY (Mechanical Engineering 25), second half-year

HEAT AND STEAM ENGINEERING LABORATORY (Mechanical Engineering 24)—In connection with thesis work

ELECTRICAL ENGINEERING LABORATORY (Electrical Engineering 11 and 12)—3 afternoons

DRAWING (Mechanical Engineering 28)

THESIS, original investigation or professional problem on a subject approved by the Professor of Mechanical Engineering

See pages 51 to 180 for departmental statements with details of the above courses.

MINING ALTERNATIVE, OR COURSE C

NOTE—The first three years are the same for all Alternatives

Fourth Year

(To be offered in 1900-1901)

THERMODYNAMICS (Mechanics 4)—3 hours, second half-year

HEAT AND ITS APPLICATIONS (Mechanical Engineering 19)—3 hours, and laboratory practice, first half-year

DYNAMICS OF MOTORS (Mechanical Engineering 21)—2 hours, second half-year

PUMPS, PUMPING, AND SPECIAL ENGINES (Mechanical Engineering 27)—Special lectures, latter part of second half-year

WORK-SHOP ECONOMICS AND SPECIFICATIONS (Mechanical Engineering 30)—1 hour, second half-year

SHOP AND FACTORY ORGANIZATION AND MANAGEMENT (Mechanical Engineering 29)—2 hours, second half-year

HYDRAULICS (Civil Engineering 12)—2 hours, first half-year

EXCAVATION AND TUNNELLING (Mining 1)—3 hours, first half-year

BORING AND SHAFT SINKING (Mining 2)—2 hours, second half-year

MINE ENGINEERING (Mining 6)—2 hours, first half-year, and 1 hour, second half-year

ORE DRESSING (Mining 4)—2 hours

ORE-DRESSING LABORATORY (Mining 5)—Afternoons for 3 weeks, second half-year

MINE PLANT (Mining 7)—3 hours, first half-year, and 2 hours, second half-year

HEAT AND STEAM ENGINEERING LABORATORY (Mechanical Engineering 24)—If required in connection with thesis work, first half-year

ELECTRIC POWER (Electrical Engineering 2)—3 hours, first half-year

ELECTRIC RAILWAY (Electrical Engineering 8)—2 hours, second half-year

DRAWING, if required in connection with thesis work

THESIS, original investigation or professional problem on a subject approved by the Professor of Mechanical Engineering

See pages 51 to 180 for departmental statements with details of the above courses.

COURSE IN ARCHITECTURE

First Year

- ARCHITECTURAL ENGINEERING (Architecture 14a)—2 hours
 ELEMENTS OF ARCHITECTURE (Architecture 8)—3 hours, second half-year
 ANCIENT ARCHITECTURAL HISTORY (Architecture 1)—3 hours
 HISTORY OF ANCIENT ORNAMENT (Architecture 5)—1 hour
 ARCHÆOLOGY, FRENCH (Architecture 16)—2 hours
 ELEMENTARY DESIGN (Architecture 15)—1 hour
 PROJECTIONS, SHADES, AND SHADOWS (Architecture 10)—3 hours, first half-year
 ARCHITECTURAL ESSAYS (Architecture 17)—1 hour
 DRAWING, ARCHITECTURAL AND FREEHAND (Architecture 9 a and b)—17 hours
 HISTORICAL DRAWING (Architecture 9c)—2 hours
 SURVEYING (Civil Engineering 1) *optional*—2 hours, second half-year

Summer Vacation

- SURVEYING (Civil Engineering 15) *optional*—6 weeks field work
 SUMMER WORK—Historical Memoir, sketches and drawings

Second Year

- PERSPECTIVE (Architecture 11)—8 lectures, December and January
 ARCHITECTURAL ENGINEERING (Architecture 14b)—3 hours
 MEDIÆVAL ARCHITECTURAL HISTORY (Architecture 2)—2 hours, first half-year ; 2 hours, and 15 hours research, second half-year
 ARCHÆOLOGY, GERMAN (Architecture 16)—2 hours
 HISTORY OF MEDIÆVAL ORNAMENT (Architecture 6)—1 hour
 THEORY OF ARCHITECTURE (Architecture 4)—a. Theory of Form, 1 hour, first half-year ; b. The Decorative Arts, 1 hour, second half-year
 DESIGN, PROBLEMS (Architecture 15)—15 hours, first half-year
 HISTORICAL DESIGN (Architecture 3 and 15)—3 hours, second half-year
 ARCHITECTURAL ESSAYS (Architecture 17)—1 hour
 DRAWING, FREEHAND (Architecture 9c)—7 hours

Summer Vacation

- SURVEYING (Civil Engineering 16) *optional*—6 weeks field work
 SUMMER WORK—Historical Memoir, sketches and drawings

See pages 51 to 180 for departmental statements with details of the above courses.

COURSE IN ARCHITECTURE

Third Year

ARCHITECTURAL ENGINEERING (Architecture 14c)—6 hours

MEDIÆVAL ARCHITECTURAL HISTORY (Architecture 2)—2 hours, first half-year; 2 hours, and 15 hours research, second half-year

HISTORY OF MEDIÆVAL ORNAMENT (Architecture 6)—1 hour

THEORY OF ARCHITECTURE (Architecture 4)—*a.* Theory of Form, 1 hour, first half-year; *b.* The Decorative Arts, 1 hour, second half-year

SPECIFICATIONS (Architecture 13a)—2 hours

BUILDING MATERIALS (Architecture 13b)—2 hours

DESIGNS, PROBLEMS (Architecture 15)—15 hours, first half-year

HISTORICAL DESIGN (Architecture 3 and 15)—3 hours, second half-year

ARCHITECTURAL ESSAYS (Architecture 17)—1 hour

DRAWING, FREEHAND (Architecture 9c)—2 hours

Summer Vacation

SUMMER WORK—Memoir on some subject assigned by the Professor of Architecture; sketches and drawings

Fourth Year

ADVANCED ARCHITECTURAL HISTORY (Architecture 18)—2 hours

ADVANCED ARCHITECTURAL DESIGN (Architecture 19)—25 hours

ADVANCED ARCHITECTURAL ENGINEERING AND PRACTICE (Architecture 20 and 21)—15 hours, and 15 hours practice

DESCRIPTIVE GEOMETRY (Architecture 12)—1 hour, first half-year

STEREOTOMY (Architecture 12)—1 hour, second half-year

DRAWING, FIGURE, ORNAMENT, AND WATER-COLORS (Architecture 9b)—2 hours

THESIS, original design and discussion

See pages 51 to 180 for departmental statements with details of the above courses.

By-Laws

1. At the beginning of the first year each student must elect which of the several courses he intends to pursue, and must thenceforth abide by his election unless permitted by the Committee on Admissions and Examinations to make a change.

2. No student is allowed to pursue more than one course at a time.

3. For reasons of weight the substitution of a subject in one course for an equivalent in another course may be made by the Faculty on the request of any candidate for a degree, provided that such substitution have the approval of the heads of the departments concerned, and of the department giving the technical instruction that leads to the degree for which the student is a candidate.

Admission

4. Candidates for admission to the first class, at its formation, must be of the age of *eighteen years*, complete; and for admission to advanced standing there will be required a corresponding increase of age; but this rule may be modified when, in the opinion of the Committee on Admissions and Examinations, there are sufficient reasons to justify its relaxation.

Enrolment and Certificates

5. An applicant for admission must file with the Bursar, at least one week before the day fixed for the entrance examinations, a certificate from his principal instructor containing a definite statement of the subjects which he is qualified to offer for examination.

No student will be examined in June, 1899, whose name is not enrolled and whose certificate is not filed on or before Tuesday, June 6th, of the same year; nor will any student be examined in September, 1899, whose name is not enrolled and whose certificate is not filed on or before Monday, September 18th.

Blank forms of the certificate required can be had upon application to the Bursar. In the case of students expecting to be examined at a distance, the names must be enrolled and the certificates filed one week earlier.

6. Every candidate must, before admission, present a certificate of good moral character from his last teacher, or from some citizen in good standing, and students from other institutions must bring certificates of honorable dismission.

Entrance Examinations

7. Candidates for the first class must pass satisfactory examinations in: Mathematics, Physics, Chemistry, English, French, German, History, and Freehand Drawing.

Mathematics:

Arithmetic: No formal examination as a separate requirement. A knowledge of the metric system and the ability to reckon accurately are to be presupposed.

Algebra (a) : Factors, common divisors and multiples, fractions, equations of the first degree, with one or more unknown quantities, involution, evolution, the doctrine of exponents, radicals, radical equations reducible to equations of the first degree, and putting problems into equations.

Algebra (b) : Quadratic equations, and such equations with one or more unknown quantities as can be solved by the methods of quadratic equations, ratio and proportion, arithmetical and geometrical progressions, the binomial theorem for positive entire exponents, and the principle of undetermined coefficients including its application to series and partial fractions.

Geometry (a) : Plane geometry, including the solution of simple original exercises and numerical problems.

Geometry (b) : Solid and spherical geometry, including the solution of simple original exercises and numerical problems.

Plane trigonometry : The elementary principles of logarithms, the use of tables of logarithms of numbers and of logarithms of trigonometric functions, and the solution of right-angled and of oblique-angled plane triangles.

Physics :

The equivalent of Hall's and Bergen's text-book of physics.

An approved laboratory course of at least forty experiments, actually performed at school by the candidate.*

Chemistry :

The non-metallic elements and their important compounds with each other, as usually given in high-school text-books.

An approved laboratory course of at least forty experiments, actually performed at school by the candidate, as given in Remsen's, or Armstrong and Norton's Laboratory Manuals.*

English :

No applicant will be accepted in English whose work is notably defective in point of spelling, grammar, idiom, punctuation, or division into paragraphs.

1. READING AND COMPOSITION. The candidate will be required to present evidence of a general knowledge of the subject-matter of the prescribed books, and to answer simple questions on the lives of their authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. The treatment of these topics is designed to show the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of a part or the whole of this test, the candidate may present

* For the present students who may be admitted with conditions in laboratory work in chemistry or physics will be given opportunity to perform the required experiments in the laboratories of the University.

an exercise book *, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

The candidate is expected to read intelligently all the books prescribed. He should read them as he reads other books; he is not expected to know them minutely, but to have freshly in mind their most important parts. In preparation for this part of the requirement, it is important that the candidate shall have been instructed in the fundamental principles of rhetoric.

Candidates offering this part of the requirement as a preliminary subject should be prepared on the books prescribed for the year in which they are to take their final examination, *i. e.*, candidates who are to be examined on part 2 of the English requirement in 1900 should present themselves for examination in 1899 on part I of the list for 1900.

The books prescribed for this part of the examination are as follows:

In 1899: Dryden's *Palamon and Arcite*; Pope's *Iliad*, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in the *Spectator*; Goldsmith's *Vicar of Wakefield*; Coleridge's *Ancient Mariner*; De Quincey's *Flight of a Tartar Tribe*; Cooper's *Last of the Mohicans*; Lowell's *Vision of Sir Launfal*; Hawthorne's *House of the Seven Gables*.

In 1900: Dryden's *Palamon and Arcite*; Pope's *Iliad*, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in the *Spectator*; Goldsmith's *Vicar of Wakefield*; Scott's *Ivanhoe*; De Quincey's *Flight of a Tartar Tribe*; Cooper's *Last of the Mohicans*; Tennyson's *Princess*; Lowell's *Vision of Sir Launfal*.

In 1901: Shakspeare's *Merchant of Venice*; Pope's *Iliad*, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in the *Spectator*; Goldsmith's *Vicar of Wakefield*; Coleridge's *Ancient Mariner*; Scott's *Ivanhoe*; Cooper's *Last of the Mohicans*; Tennyson's *Princess*; Lowell's *Vision of Sir Launfal*; George Eliot's *Silas Marner*.

2. STUDY AND COMPOSITION. This part of the examination presupposes the thorough study of each of the works named below. The examination will be upon the subject-matter, the literary form, and the logical structure.

The candidate may be required, in addition, to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

In connection with the reading and study of the required books, parallel or subsidiary reading should be encouraged, and a considerable amount of English poetry should be committed to memory. The essentials of English grammar should not be neglected in preparatory study.

The books prescribed for this part of the examination are as follows:

In 1899: Shakspeare's *Macbeth*; Milton's *Paradise Lost*, Books I and II; Burke's *Speech on Conciliation with America*; Carlyle's *Essay on Burns*.

In 1900: Shakspeare's *Macbeth*; Milton's *Paradise Lost*, Books I and II; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton and Addison*.

* Specific directions with regard to the preparation of such exercise books may be obtained by addressing the Department of Rhetoric, Columbia University.

In 1901 : Shakspeare's *Macbeth* ; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso* ; Burke's *Speech on Conciliation with America* ; Macaulay's *Essays on Milton and Addison*.

French :

(1) The translation at sight of ordinary nineteenth-century prose.

It is important that the passages set be rendered into clear and idiomatic English. It is believed that the power of translating at sight ordinary nineteenth-century prose can be acquired by reading not less than four hundred duodecimo pages from the works of at least three different authors. Not more than one-half of this amount ought to be from works of fiction. This number of pages is to include not only prepared work, but all sight reading done in class.

(2) The translation from English into French of sentences or of a short connected passage to test the candidate's familiarity with elementary grammar.

Elementary grammar is understood to include the conjugations of regular verbs, of the more frequent irregular verbs, such as *aller*, *envoyer*, *tenir*, *pouvoir*, *voir*, *vouloir*, *dire*, *savoir*, *faire*, and those belonging to the classes represented by *ouvir*, *dormir*, *connaître*, *conduire*, and *craindre* ; the forms and positions of personal pronouns, the uses of other pronouns and of possessive, demonstrative, and interrogative adjectives ; the inflection of nouns and adjectives for gender and number, except rare cases ; the uses of articles, and the partitive constructions.

NOTE—An adequate preparation for this examination ought to extend over two or three years at the ordinary pace of school work. In exceptional cases one year with five hours recitations per week may possibly meet the requirement. Pronunciation should be carefully taught and pupils be trained to some extent to hear and understand spoken French. The writing of French from dictation is recommended as a useful exercise.

German :

(1) The rudiments of grammar, and especially these topics : the declension of articles, adjectives, pronouns, and such nouns as are readily classified ; the conjugation of weak and of the more usual strong verbs ; the commoner prepositions ; the simpler uses of the modal auxiliaries ; the elementary rules of syntax and word order. The proficiency of the applicant will be tested by questions on the above topics and by the translation into German of simple English sentences.

(2) Translation at sight of a passage of easy prose containing no rare words. It is believed that the requisite facility can be acquired by reading not less than two hundred duodecimo pages of simple German.

NOTE—An adequate preparation for this examination ought to extend over two or three years, at the ordinary pace of school work. In exceptional cases one year with five hours recitations per week, may possibly meet the requirement. Practice in pronunciation, in writing German from dictation, and in the use of simple German phrases in the class-room is recommended.

History :

On the equivalent of Johnston's History of the United States.

Freehand Drawing : For candidates for admission to the School of Architecture :

The ability to draw correctly any simple geometrical figure from dictation, and to enlarge or reduce from a copy in outline, an anthemion, an acanthus leaf, a design of iron scroll-work, or some similar ornament. For this work correct construction and accuracy of proportion are more important than fineness of execution.

Out-of-town examiners are requested to apply to the School of Architecture for examples of the sort of drawings that are required.

Freehand Drawing : For candidates for admission to the other schools :

The ability to sketch, both in outline and with proper shading, ordinary objects, such as a house, a simple piece of machinery, a piece of flat ornament from a copy, a group of geometrical solids.

Each applicant must execute the required drawings in the presence of the examining officer. No certificate of drawings made elsewhere will be accepted.

8. Entrance examinations will be held at the University, on Tuesday, June 13th, 1899, and days following, and on Monday, September 25th, 1899, and days following. In 1900 entrance examinations will begin on Tuesday, June 12th, and on Monday, September 24th. By permission of the Committee on Admissions and Examinations, on suitable application, entrance examinations may be held at any time during the session.

For the convenience of candidates for admission residing at a distance from New York examinations for entrance will be held at other cities in June, 1899, and in June, 1900, (but not in September), on the same days as at the University, by the following gentlemen :

Belmont, California, by W. T. REID, A.M., *Head Master of the Belmont School.*

Bozeman, Montana, by F. W. TRAPHAGEN, Ph.D., F.C.S.

Charleston, South Carolina, by P. E. CHAZAL, A.B., E.M.

Chicago, Illinois, by E. G. BARRATT, C.E.

Cincinnati, Ohio, by DAVID FOERSTER, E.M.

Cleveland, Ohio, by R. F. JOPLING, E.M.

Concord, New Hampshire, by C. S. KNOX, A.M.

Denver, Colorado, by T. B. STEARNS, E. M.

St. Louis, Missouri, by W. B. POTTER, A.M., E.M.

Salt Lake City, Utah, by R. H. TERHUNE, E.M.

9. The applicant may present himself in a portion of the subjects in June, and complete his examinations in September of the same year. But no examination for admission will be allowed to stand to the credit of an applicant for a period longer than sixteen months.

Preliminary Examinations

10. An applicant duly enrolled, who has filed the required certificate from his principal teacher, may, at the appointed examination time in May or June

of the year preceding his admission into the first class, but not at any other time, be examined on certain portions of the foregoing subjects. Such an applicant may offer at the preliminary examination the following subjects :

Arithmetic.
Algebra (a).
Geometry (a).
Physics.
Chemistry.
English, Reading, and Composition.
French.
German.
History.
Freehand Drawing.

The following subjects may not be offered at the preliminary examination :

Algebra (b).
Geometry (b).
Trigonometry.
English, Study, and Composition.

Diplomas and Certificates in Lieu of Examination

11. Diplomas and certificates of colleges and schools of science will be accepted, for the ground they cover, in lieu of examination, *if satisfactory to the examining officers*.^{*} Each examining officer decides the question for his special department. No certificates in lieu of examinations will be accepted, except those of degree-granting institutions, including the Regents of the University of the State of New York.

Admission and Conditions

12. The Committee on Admissions and Examinations will decide, and report to the Dean, within twelve days after the conclusions of the examinations, those candidates who have been admitted, those who have been admitted conditionally, and those who have been rejected.

13. Students deficient in minor studies may be admitted conditionally ; each case being considered on its merits by the Committee on Admissions and Examinations. Students admitted conditionally at the beginning of the academic year must satisfy all conditions in Mathematics within three months, and other conditions within a year or at such time as may be determined by the Committee on Admissions and Examinations. Students who fail to satisfy their entrance conditions within the time specified may be dropped from the roll.

14. The Committee on Admissions and Examinations have jurisdiction over all questions arising under the rules relating to entrance examinations.

^{*} Regents' academic diplomas, of 48 or more counts, are accepted in lieu of examinations for entrance, provided that such diplomas include 14 academic counts in Mathematics, and 8 academic counts each in English, French, and German.

Regents' pass-cards and certificates are accepted for the subjects covered only

Certificates and diplomas should be submitted to the examining officers, for their approval, before the day set for the entrance examinations in each case.

Advanced Standing

15. Candidates for advanced standing must pass satisfactory examinations upon the studies stated in By-Law 7, and also upon those pursued by the class up to the time at which they propose to enter.

16. No candidates are admitted later in the course than the beginning of the fourth year.

Attendance

17. Prompt attendance is required upon all exercises. Each instance of tardiness will be counted as half an absence.

18. Attendance during all the hours specified on the scheme of attendance adopted by the Faculty is obligatory.

19. Any student who shall have been absent from more than ten per cent. of the exercises in any subject, shall not be entitled to examination in that subject.

20. Every student is expected and required to keep an account of his absences, and should he exceed the limit allowed in any course, he must present to the Dean, during the week preceding the stated examination, satisfactory explanation of all his absences, or be debarred from the examination; but he may present himself at the examination in the fall for debarred and deficient students. If the absences are excessive the Committee on Admissions and Examinations may make such further ruling in regard to his examination as may seem to them to be required in his case.

21. Any student who shall be persistently irregular in attendance on any required exercise, or who shall fail to make satisfactory progress therein, may be put upon probation* by the Committee on Admissions and Examinations at the request of the head of the department concerned.

22. Students are required to attend all the exercises and pass all the examinations of the class and course to which they belong unless specially excused by the Committee on Admission and Examinations.

23. By special permission of the Committee on Admissions and Examinations, students may attend exercises not required in the class or course to which they belong, provided that such attendance does not interfere with the required exercises of their class and course. Such students are held to the same rules of attendance and examination in the extra studies as in the required studies of their class and course.

24. Any student who shall have passed a satisfactory examination in Colum-

* PROBATION.—Probation means serious danger of separation from the University. A student on probation is not allowed to take part as a student in any public performance or in any public contest; he cannot be recommended for a degree; he may be required to put himself under the direction of a private tutor approved by the Dean, and to take such other measures as may seem to be required to make good his deficiencies. He cannot be restored to full standing without a special vote of the Committee on Admissions and Examinations; and at any time, by a vote of the Faculty, his probation may be closed and his connection with the University ended.

bia College in any study forming a part of one of the regular courses in the Schools under the Faculty of Applied Science will not be required to pursue that study.

Examinations and Standing

25. Examinations will be held at the end of the first half-year (semi-annual), or at the end of the year (annual), on all subjects taught. Examinations for debarred and deficient students will be held during the last ten days of the summer vacation. Examinations at times other than here specified are not held except upon order of the Committee on Admissions and Examinations, for reasons of weight.

26. Any student found guilty of fraudulent practices at examination will be summarily dismissed.

27. Every officer will keep a record of the scholarship of each student, and at the close of every half-year, and after the stated examination has been held, each officer of instruction will report to the Dean a list of all the students who have attended his instruction, indicating their proficiency by numbers on a maximum of 10, a mark below 6 constituting a failure to pass. Each student's record will be transmitted to him at the close of each year.

28. Any student, who shall fail to pass in any of his studies at the regular semi-annual or annual examination, may present himself for a second examination at the end of the summer vacation; failing to pass in this second examination he may be dropped from his class and required to repeat the subject with the next following class, but the Committee on Admissions and Examinations may exercise its discretion in excusing him from attendance on such a subject, holding him to such other requirements as may seem advisable; failing a third time to pass a satisfactory examination in any study, his name may be dropped from the roll.

29. A student dropped from the roll of his class will not be permitted to attend any of the exercises of the said class without the consent of the Committee on Admissions and Examinations, given for reasons of weight.

30. Students failing in any subject will not be permitted to take advanced studies for which, by reason of such deficiency, they are not properly prepared; nor will they be allowed to attend any summer school without special permission of the Committee on Admissions and Examinations.

31. A student failing to make satisfactory progress in any subject shall be warned by the instructor in charge thereof that his work is of such a character that, unless improved, it may result in his being put upon probation.*

32. A student reported in grade 6 in a majority of the subjects pursued by him in any year, and not reported in grade 8, or higher, in the greater part of the remainder of such subjects, will not be permitted to go on with his class without the consent of the Committee on Admissions and Examinations, given for reasons of weight, but he may enter the next succeeding class, and pursue such subjects as may be required of him by the Committee.

* See note on page 302.

33. Absence from the regular semi-annual or annual examination, unless excused by the Committee on Admissions and Examinations, will be counted a failure to pass that examination. This rule shall apply to examinations for delinquents held at the end of the summer vacation.

34. When a student fails to receive his degree with his class, and returns at some later period to present himself for examination for the same, he will be required to comply with all the requirements at the later date, and the same rule shall apply to students who have received one degree and make application for another.

Memoirs and Summer Work

35. During the vacations following the close of each year, memoirs on subjects which will be assigned are required of students in the courses of Civil Engineering, Electrical Engineering, Mechanical Engineering, of Analytical, Industrial, and Organic Chemistry, and of Architecture. The time specified for the completion and handing in of memoirs in Chemistry and Electrical Engineering is November 1st of each year; for other memoirs and summer work the time specified is the second Monday in October.

36. Students of the second, third, and fourth classes who fail to hand in the memoirs, drawings, and other summer work required of them under the rules at the specified time, shall not be permitted to hand them in until the beginning of the next academic year, and failing in this latter requirement they shall be dropped from the roll of the class. This requirement may be waived, for reasons of weight, in the case of students of the fourth class.

Special Students

37. Graduates of the School of Mines, the School of Chemistry, the School of Engineering, the School of Architecture, and of other institutions of like grade and standing, may pursue any subjects taught in the Schools for which they are properly qualified.

38. Permission to pursue special courses is sometimes given, for reasons of weight, to persons of mature age who are not graduates, but special students are not desired in the regular professional courses.*

The Laboratories and Drawing Academies

39. No student will be allowed in a laboratory or drawing academy at a time when his attendance there is not due. During hours assigned for practical work in each of the laboratories, and in the drawing academies, the attendance of students will be required. A record of the daily attendance and of the progress of each student will be kept by the officer in charge.

40. The attendance of students of the first and second years in the drawing-rooms at such times as they are not engaged at lectures, between 9.30 A.M. and 1.30 P.M., is obligatory for students in Engineering and Architecture, for such hours and times as may be selected by the Professors of Engineering and Architecture.

* Except in the School of Architecture, where professional draughtsmen of age and experience are received for periods of two months at a time.

Order

41. Good order and gentlemanly deportment are required of all students, as a condition of attendance.

NOTE.—To render unnecessary many inquiries it is here stated that there are no dormitories attached to the University at present.

Excursions

During the session, the students may visit the different mines, machine-shops, electrical and metallurgical establishments, chemical works, and points of geological interest of the city and its environs, and excursions for this purpose are frequently organized by the different departments.

CLASS IN MECHANICAL ENGINEERING—During the third year students may join a volunteer class in practical mechanical engineering under the supervision of the Professor of Mechanical Engineering.

Summer Schools

SUMMER SCHOOL IN SURVEYING—During the latter part of the vacations following the close of the first and second years, students in the courses of mining, civil and sanitary engineering, and metallurgy, are required to join the summer school in surveying under the direction of the Instructor in Civil Engineering.

During the latter part of the vacation following the close of the third year, students in the courses of mining and civil engineering are required to attend a class in railroad surveying for a period of four weeks. The students in the mining engineering course have the option of attending this class in the vacation following the close of the second year. This class is under the direction of the Instructor in Civil Engineering.

SUMMER SCHOOL IN GEODESY—During the vacation following the close of the third year, students in the courses of civil and sanitary engineering are required to attend a summer school in geodesy for six weeks. The class is under the supervision of the Professor of Astronomy.

SUMMER SCHOOL IN MINING—During the vacation following the close of the third year, students in the courses of mining engineering and metallurgy are required to visit the mines and engage in actual work or study for five weeks, under the superintendence of the Adjunct Professor of Mining. This summer school is open to second-year students, *without conditions*, as an optional course.

SUMMER SCHOOL IN METALLURGY—In the latter part of the vacation following the third year, students in metallurgy are required to devote two weeks to practical metallurgy. This summer school is open to students in mining engineering and chemistry as an optional course.

SUMMER SCHOOL IN GEOLOGY—The Trustees of the University have made an appropriation for a summer school in geology which defrays the expenses of a small squad of advanced students for about one month each summer, with

the Professor of Geology. Also, in connection with the summer school in practical mining, at least one week is devoted to practical field geology, for the students in the courses of mining engineering and metallurgy.

Equipment and Collections

Detailed information as to the laboratories, museums, collections, libraries, and other facilities for study and research will be found in the departmental statements as follows :

Architecture,	page 56
Chemistry,	page 65
Civil and Sanitary Engineering,	page 76
Electrical Engineering,	page 82
Geology,	page 100
Mechanical Engineering,	page 87
Metallurgy,	page 124
Mineralogy,	page 128
Mining,	page 130
Physics,	page 158

Chemical and Assay Apparatus

1 Students may purchase apparatus of any of the dealers in the city.

2 To avoid inconvenience and expense to the students, and to secure a proper selection, the University undertakes, at considerable trouble and expense, to lend apparatus on the following conditions :

(a) Each student engaged in chemical or assay laboratory work, who draws apparatus, must make with the Bursar deposits, as follows, which will be credited to him :

Students taking first-year laboratory work in qualitative analysis . . .	\$20
Other chemical or assay laboratory work	40

In case of excessive draughts of apparatus an additional deposit may be required.

(b) Each student shall be entitled, on presenting his receipt at the apparatus room, to draw the regular set of apparatus for qualitative analysis, for quantitative analysis, for organic analysis, or for assaying, on account of his deposit, and from time to time to obtain ordinary articles that he may need, which will be charged to him. At the end of the year he will be credited with those articles which he returns in good order, and the value of those which he has injured or broken will be deducted from his deposit.

(c) The apparatus room will be open for issuing apparatus every day at convenient hours.

(d) No charge is made for ordinary chemicals.

REGISTER OF STUDENTS

FOURTH YEAR CLASS

MINING ENGINEERS

Bauman, Albert Philip.....	New York
Cabot, John, Jr.....	New York
Crawford, Henry Erastus.....	New York
Hudson, Percy Kierstead.....	New York

CIVIL ENGINEERS

Anderson, Robert Peter.....	New York
Berger, John, B.S., <i>N. Y. City College</i>	New York
Delson, Isadore.....	New York
Dieterich, Alfred Elliot.....	New York
Durham, Leicester.....	Brooklyn
Falk, Myron Samuel.....	New York
Simonson, Lawrence Mason.....	New York
Stratford, Thomas Alexander.....	Brooklyn
Weinstein, Maximilian.....	New York

ELECTRICAL ENGINEERS

Aylmer-Small, Charles Sidney.....	Passaic, N. J.
Carpenter, Henry Cannon.....	New York
Clark, William Glasgow.....	St. Louis, Mo.
Cogan, Henry Manning.....	Brooklyn
Dickerson, Frank Secor.....	Great Neck, N. Y.
Ehrenreich, James Jacob.....	New York
Ferguson, Samuel, B.S., <i>Trinity</i>	Hartford, Conn.
Fliess, Robert Anton.....	New York
Frank, Augustus Alphonsus.....	New York
Jung, Andrew Norwood.....	Brooklyn
McCaskell, Jasper A., E.E., <i>Johns Hopkins</i>	Salt Lake City, Utah
Murphy, George Robert, A.M., <i>St. Francis Xavier</i>	Hoboken, N. J.
Orner, George Darmon.....	New York
Perkins, Henry Augustus, A.B., <i>Yale</i>	Hartford, Conn.
Schroeder, Henry.....	New York
Schulte, Edward Delavan Nelson, B.S., <i>Trinity</i>	Philadelphia, Pa.
Scudder, Hewlett, Jr., A.B., <i>Yale</i>	New York
Slaven, Ralph Edward.....	New York
Vom Baur, Carl Hans.....	New York

CHEMISTS

Beck, Oscar Charles.....	New York
Casamajor, Walter.....	Brooklyn
Fisher, Henry, B.S., <i>N. Y. City College</i>	New York
Heike, Rudolph Ernest.....	Jersey City, N. J.
Kneeland, Frederick Revell.....	New York

ARCHITECTS

Boyd, John Dalzell.....	New York
Cairns, Bayard Snowden, A.B., <i>N. Y. City College</i>	New York
Fechheimer, Abraham Lincoln.....	Cincinnati, O.
Hawkins, Stephen Olney.....	Brooklyn
McCulloch, Robert Austen.....	New York

FOURTH YEAR CLASS

Mining Engineers.....	4
Civil ".....	9
Electrical ".....	19
Chemists.....	5
Architects.....	5
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THIRD YEAR CLASS

MINING ENGINEERS

Bell, Clarence Francis.....	New York
Fuente, Jesús de la.....	Nadadores, Mexico
Henne, Christopher, 2d, A.B., <i>Stanford</i>	Los Angeles, Cal.
McClelland, James Farley.....	Poughkeepsie, N. Y.
Parker, Asa Warren, Jr., A.B., <i>Columbia</i>	Brooklyn
Perry, Oscar Butler, A.B., <i>Indiana</i>	Bloomington, Ind.
Riter, Levi Evans, Jr.....	Salt Lake City, Utah
Sales, Reno Haber, B.S., <i>Montana State Univ.</i>	Bozeman, Mont.
Schwerin, Martin.....	New York
Strauss, Lester.....	New York

CIVIL ENGINEERS

Feldman, Max.....	New York
Ford, Harry Clifford.....	New York
Godwin, Philander Hanford.....	New York
Henderson, Henry Howison.....	Yonkers, N. Y.
Immediato, Gerardo.....	Montclair, N. J.
LeCount, Llewellyn.....	New York
Lewis, Meyer Henry.....	New York
Pitt, Rafford.....	New Rochelle, N. Y.
Reilly, Joseph Aloysius.....	New York
Runge, Albert, C.E., <i>Penn. Military College</i>	Flushing, N. Y.
Spiller, Robert Lawrence.....	New York

ELECTRICAL ENGINEERS

Ambler, Nathan Babcock.....	Chatham, N. Y.
Barlow, Elbert Spicer.....	Brooklyn
Bates, Louis William.....	Brooklyn
Briggs, Walter Preston.....	New York
Brown, Hugh Auchincloss.....	Rutherford, N. J.
Burns, Dawson Jabez.....	New York
Clinch, Edward Sears, Jr.....	New York
de Mille, William Churchill.....	Pompton, N. J.
Heinekin, William Price.....	New Brighton, N. Y.
Hulbert, Charles Southard.....	New York
Jessup, Warren Canfield.....	Augusta, Ga.
Kebler, John Leonard.....	New York
Koscherak, Ferdinand Eli.....	New York
McIntyre, Henry Knox.....	New York
Machen, Charles Hudson.....	New York
Magnus, Benjamin.....	New York
Moschkowitz, Meer-Schmul, M.E., <i>Münich Polytechnikum</i>	Odessa, Russia
Müller, Julius.....	New York
Roman, Joseph Martin.....	New York
Simpson, William Thornton.....	New York
Smith, Frank Gerard.....	New Rochelle, N. Y.
Solomon, Nathan Clarence, B.S., <i>N. Y. City College</i>	New York
Steven, Frank Ransom.....	Brooklyn
Tilt, Benjamin Bricklyn.....	New York
Wessels, Eugene Herbert.....	New York

METALLURGIST

Foster, Oscar Riker.....	Brooklyn
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CHEMISTS

Eccles, David Charles.....	Brooklyn
Imlach, William Bertram.....	New York
Josephson, Edgar.....	Brooklyn
Madan, Julian Appleton.....	New York
Mehrback, William.....	New York
Smith, Burnett.....	New York
Tiemann, Hugh Philip.....	New York
Wright, Ralph Garrigue.....	St. Louis, Mo.

ARCHITECTS

Blondel, Theodore, Jr.....	New York
Blum, Edward.....	New York
Chapman, Howard.....	Brooklyn
Curry, Robert.....	New Brighton, N. Y.
Reilley, Robert Joseph.....	New York
Satterlee, Edward Lansing.....	New York
Walsh, Louis Angelo.....	Waterbury, Conn.

THIRD CLASS YEAR

Mining Engineers.....	10
Civil ".....	11
Electrical ".....	25
Metallurgist.....	1
Chemists.....	8
Architects.....	7
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SECOND YEAR CLASS

MINING ENGINEERS

Armstrong, Homer.....	Great Falls, Mont.
Erdal, Oscar Wilson.....	Johannesburg, So. African Republic
Fisher, Robert Mulford.....	Mt. Vernon, N. Y.
Fulton, John Allen, B.S., <i>Nevada State Univ.</i>	Reno, Nevada
Goode, Edmund Lowry.....	Brooklyn
Goodman, Maurice, B.S., <i>N. Y. City College</i>	New York
Hitchcock, Charles Knap, Jr., A.B., <i>Columbia</i>	Bayonne, N. J.
Lacey, Richard Austin.....	Brooklyn
Longacre, Orleans, Jr.....	Spuyten Duyvel, N. Y.
McLintock, Archibald.....	New York
Mills, Henry Jayne.....	Brooklyn
Mitchell, William Ellis.....	New York
Rossi, Louis Mansfield.....	Perth Amboy, N. J.
Ryker, Henry Benson.....	New York
Schwerin, Clarence Maurice.....	New York
Thayer, Reginald Holden.....	Yonkers, N. Y.
Weekes, Frederic Robert.....	Ridgewood, N. J.
Yung, Morrison Brown, Ph.B., <i>Sheffield Scientific School</i>	Hartford, Conn.

CIVIL ENGINEERS

Bos, George.....	New York
Brodie, Orrin Lawrence.....	Pittsburg, Pa.
Buchhotz, Gustavus William.....	New York
Burt, Harry Radcliffe.....	Larchmont, N. Y.
Coykendall, Frank.....	Rondout, N. Y.
Dougherty, Richard Erwin.....	New York
Kempner, Milton, A.B., <i>N. Y. City College</i>	New York
Morrison, Charles Edward, B.S., <i>N. Y. City College</i>	New York
Oddie, Harold Hoyle.....	New York
Rae, James Giles.....	New York
Robinson, Arthur.....	New York
Wemlinger, Julius Ralph.....	New York
Zipser, Morris.....	New York

ELECTRICAL ENGINEERS

Acton, Harry Wagner.....	New York
Bard, Ernest Robinson.....	New York
Bard, Sidney White.....	New York
Bayne, Howard.....	New York
Bigelow, Richard.....	New York
Brandon, Vivian Isaac.....	New York
Cassard, William John, Jr.....	New York
Dixon, James.....	Flushing, N. Y.
Doud, Charles Hamilton, A.B., <i>Yale</i>	New York
Dusenbury, Arthur Newcomb	Lake Mahopac, N. Y.
Goerwitz, William.....	New York
Goodwillie, Robert Hogue.....	New York
Havill, Owen Augustine, A.B., <i>St. Francis Xavier</i>	Jersey City, N. J.
Hochlerner, Tobias.....	New York
Knowlton, Frederic Kirk.....	Rochester, N. Y.
Lawlor, Joseph Francis, A.B., <i>St. Francis Xavier</i>	New York
Lawrence, Augustine Neil.....	New York
Levine, Albert Julius.....	New York
Martin, John Sayre, Jr.....	New York
Meeks, Reginald.....	New York
Meissner, William Christen.....	New York
Morrill, William Charles.....	New York
Neu, Samuel Sidney.....	New York
Oakley, Walton Livingston.....	New York
Parker, Lindsay Reed.....	Brooklyn
Parsons, Isaac Dayton.....	New York
Rionda, José Bernardo.....	New York
Rionda, Manuel Enrique.....	New York
Rogers, Edward Washburn.....	New York
Sage, Darrow.....	New York
Sharkey, Howard Raymond.....	New York
Smith, Byron Weed.....	New York
Smith, Leonard Bacon, Jr.....	New York
Titus, Samuel Howard.....	Brooklyn
Van Winkle, Edward.....	Jersey City, N. J.
von Schrenk, Arnold.....	New York
Weston, Edward Farraday.....	New York

MECHANICAL ENGINEERS

Alsberg, Julius, A.B., <i>Columbia</i>	New York
Britton, Henry Berry.....	New York
Clark, Walter Lemuel.....	New York
Colwell, Lino Montalvo, B.S., <i>N. Y. City College</i>	New York
Read, Clark Potter.....	New York
Van Horne, John Reginald.....	Jersey City, N. J.

CHEMISTS

Bernheim, George Benjamin.....	New York
Boroschek, Leopold, B.S., <i>N. Y. City College</i>	New York
Cameron, Walter Scott, A.B., <i>N. Y. City College</i>	New York
Falk, Kaufman George.....	New York
Goodenough, Robert Judson.....	Brooklyn
Hubbard, George Canning, Jr.....	Tottenville, N. Y.
Page, Robert Weise.....	Brooklyn
Palmenberg, Oscar Walter.....	New York
Pfeiffer, Clarendon Henry.....	New York
Pickhardt, William Paul, B.S., <i>Gymnase Coulanah de Neuchatel</i>	New York

ARCHITECTS

Bartberger, Edward William.....	Pittsburg, Pa.
Benedict, Eli.....	New York
Blair, Edgar.....	Des Moines, Iowa
Clark, Theodore, B.S., <i>Univ. of Minnesota</i>	St. Cloud, Minn.
Colt, Morgan.....	Shinnecock Hills, N. Y.
Elliot, Robert Huger.....	New Orleans, La.
Entz, George Gilbert.....	New York
Heidelberg, Max Gustave.....	New York
Hill, Lawrence.....	New York
Hooper, Henry Northey, Jr.....	Brooklyn
James, Marshall Thomas.....	Jersey City, N. J.
Kafka, Hugh, Jr.....	New York
Kaiser, Charles Sumner.....	Wilkesbarre, Pa.
Kaufman, Arthur.....	New York
Kenyon, Sands Niles.....	Syracuse, N. Y.
Keppel, David.....	New York
Lindenmeyr, Ludwig.....	New York
Lockward, Lynn Grover.....	Caldwell, N. J.
Loney, Frederick Roosevelt.....	Skaneateles, N. Y.
Mainzer, Herbert Richard.....	New York
Nelson, Francis Augustus.....	New York
Plonsky, Samuel Edward, A.B., <i>N. Y. City College</i>	New York
Ray, David Heydorn, A.B., <i>N. Y. City College</i>	New York
Steinback, Gustave Erwin.....	Brooklyn
Van Wagenen, Hubert, Jr.....	New York

SECOND YEAR CLASS

Mining Engineers.....	18
Civil “.....	13
Electrical “.....	37
Mechanical “.....	6
Chemists.....	10
Architects.....	25

FIRST YEAR CLASS

MINING ENGINEERS

Aplington, Henry Webster.....	New York
Armstead, Daniel MacPherson.....	New York
Ashley, Ralph Earl.....	Denver, Colo.
Bateson, Charles Edward Wagstaffe.....	New York
Carrington, Waring.....	Newark, N. J.
Cary, John Wilson.....	Denver, Colo.
Colman, Jerome M.....	New York
Cornell, Russell Todd.....	New York
Cromwell, Robert Hewitt.....	Brooklyn
Dickinson, Harold Thomas.....	New York
Farish, George Edwin.....	Denver, Colo.
Feust, Arthur.....	New York
Jack, Edward Roy.....	New York
James, Frederic Wilton.....	New York
Jones, Alexander Lassen.....	New York
Lindsay, Harvey Bell.....	West New Brighton, N. Y.
McCaskell, George William.....	Salt Lake City, Utah
Maeulen, Frederick.....	Evansville, Ind.
Merry, Frederick Charles.....	New York
Read, Thomas Thornton.....	Coltsneck, N. J.
Rose, Arthur Francis.....	Hudson, N. Y.
Schimper, Frans Johannis von Maltitz..	Winburg, Orange Free State, S. Africa
Schroeder, Gilliat Ghequiere.....	Bartow, N. Y.
Shreve, John Nelson.....	New York
Smith, Clyde Wilbur.....	New York
Stewart, Howard Race.....	Luncheon, Australia
Stewart, John Burgoyne.....	New York
Ungrich, Martin Jacob.....	New York
Veit, Julian Nelson.....	New York
Watson, Charles Edward.....	Cleveland, O.
Wilmot, Harry Clifford.....	Redlands, Cal.
Wilson, Charles Henry.....	Mt. Vernon, N. Y.

CIVIL ENGINEERS

Close, Joseph Atwater.....	Stamford, Conn.
Du Bois, William Chandler.....	Bayonne, N. J.
Evalenko, William Alexander.....	New York
Füger, Albert Stanley.....	Philadelphia, Pa.
Goldman, Mitchel.....	Brooklyn
Hardenberg, Ambrose.....	New York
Hayt, Robert Olcott.....	Corning, N. Y.
Hildburgh, Sidney Cornelius.....	New York
Hunt-Smith, Eustace Palmer.....	Eatontown, N. J.
Irvine, Frederick Brice.....	New York

Lavery, Daniel O'Connell.....	New York
Ludlam, William Kennedy.....	New York
Maisenholder, Edward Frederick.....	New York
Mapes, Charles Maynard.....	New York
Murphy, William Aloysius.....	New York
Prout, Glover Perrin.....	Nutley, N. J.
Rappold, Gustave Adolph.....	Brooklyn
Ripley, Julien Ashton, A.B., <i>Yale</i>	New York
Roell, Antone Joseph.....	New York
Serrano, Vincente.....	New York
Smyth, David William.....	New York
Stadie, Herman Edward.....	New York
Stewart, Robert Gearn.....	Newburgh, N. Y.
Striker, Waldron Ives.....	New York
Wolff, John Benjamin.....	New York
Woodward, Robert Simpson, Jr.....	Montclair, N. J.

ELECTRICAL ENGINEERS

Baumgarten, Charles.....	New York
Briesen, Harold.....	Weehawken, N. J.
Brittingham, Arthur De Witt.....	Mt. Vernon, N. Y.
Brown, Caxton.....	New York
Brown, Stanton.....	New York
Cowing, Percy Foote.....	New York
Daniels, Harold Platt.....	New York
Diamant, Sidney.....	New York
Dickerson, Harold.....	Great Neck, L. I.
Eller, Fred William.....	New York
Frankel, Joseph Delwin.....	New York
Freund, Harry Paul.....	New York
Golden, Percy Norris.....	Elizabeth, N. J.
Goodrich, John Serre.....	New York
Gray, Clifford.....	New York
Green, Robert Corbould.....	Newtown, N. Y.
Halsey, Charles Bryant.....	New York
Hamburger, Samuel.....	New York
Haviland, Henry Field.....	New York
Hermann, Bernhard Frederic.....	Tarrytown, N. Y.
Hoguet, Ramsey Charles.....	New York
Hyman, Wallace Munroe.....	New York
Kirby, John Nash.....	New York
Leavitt, Sheldon, Jr.....	Irvington-on-the-Hudson
McAnerney, Joseph Augustine.....	New York
Miller, George Alfred, Jr.....	Montclair, N. J.
Mount, Thomas Laurence.....	Bayhead, N. J.
Murphy, Henry Augustin.....	New York
Nichols, Walter Standish.....	Newark, N. J.

O'Donovan, Leo Jeremiah, A.B., <i>St. Johns</i>	New York
Olmstead, Henry Bailey.....	Batavia, N. Y.
O'Rourke, Charles Addison, Jr.....	High Bridge, N. Y.
O'Shea, John Edmond.....	New York
Powers, Walter Hayward.....	Rye, N. Y.
Rosenblatt, Alfred.....	New York
Rosenblatt, Girard B.....	New York
Rosenthal, Leon Walter.....	New York
Ross, Samuel McNutt.....	Altoona, Pa.
Scharf, Henry Warren.....	Middletown, N. Y.
Sloane, Thomas O'Connor, Jr.....	South Orange, N. J.
Smith, Charles Hoyt.....	New York
Solomon, Isaac Rosh.....	New York
Stromeyer, William Theodore.....	New York
ter Meer, Henry Charles.....	Hoboken, N. J.
Thurston, Louis Stewart.....	Nutley, N. J.
Ulke, Darwin.....	Washington, D. C.
Ver Planck, William Everett.....	Fishkill-on-the-Hudson
Wallace, William Murray.....	New York
Warren, William Appleton.....	Old Hurley, N. Y.
Washburn, Eugene Strong.....	New York
Welcke, Celestine John.....	New York
White, Francis Joseph.....	Brooklyn
Wooding, Edmund von Ricken.....	Le Roy, N. Y.
Zucker, Arthur A.....	New York

MECHANICAL ENGINEERS

Bissell, Percy Raymond.....	Mt. Vernon, N. Y.
Borden, William Henry, Jr.....	Goldsboro, N. C.
Clarke, Henry Joseph Bowie.....	New York
Clarke, Robert Walter Maxwell.....	New York
Cregier, Abbott Morgan.....	Mt. Vernon, N. Y.
Crissey, Clarence Philip.....	New York
Faile, Malcolm Burrell.....	New York
Hatch, Walter Percy, Jr.....	New York
Heyer, Bradford Willard.....	New York
McGowan, William Edward Richard.....	New York
Marston, Charles Stephen.....	Hartford, Conn.
Matty, Leo Joseph.....	Denver, Colo.
Meehan, John Augustine.....	New York
Myers, David Moffat.....	New York
Reis, Leslie Robert.....	New York
Richmond, Julian Pierre William.....	New York
Rionda, Leandro José.....	New York
Schlosser, Philip.....	New York
Schmidt, Carl Gustav Adolph, Jr.....	New York
Swart, Clifford Townsend.....	Mt. Vernon, N. Y.

Swart, Harold Arthur.....	Mt. Vernon, N. Y.
Underhill, Benjamin Fowler.....	New Rochelle, N. Y.
Vulté, Nelson Palmer.....	New Rochelle, N. Y.
Waters, Rossiter Lester.....	New York
Welles, Germaine.....	Rochester, N. Y.
Williamson, Alfred.....	New York
Wilner, Elias.....	New York
Wilson, Lester Godfrey.....	New York
Witte mann, Rudolf Wendelin.....	Brooklyn
Wood, Dennistoun, Jr.....	Irvington, N. Y.

CHEMISTS

Breneman, Harry Campbell.....	Cincinnati, O.
Danziger, Joseph Louis.....	New York
Dickie, Albert Ernest.....	Brooklyn
Hildreth, Thomas Flagler.....	Lockport, N. Y.
Kanolt, Clarence Whitney.....	Owego, N. Y.
Kohnstamm, Lothair.....	New York
Lindsay, William Godson.....	New York
Mendelson, Leo Gustav.....	New York
Minsky, Abram Harold.....	New York
Rising, Herbert Robinson.....	Newark, N. J.

ARCHITECTS

Adenaw, Arthur Paul Frederick.....	New York
Bradley, James Aikin.....	Poughkeepsie, N. Y.
Brown, Elliott Lockwood.....	New York
Budds, Benjamin Courtney.....	New York
Bussmann, Arthur Henry.....	Brooklyn
Carnrick, Millard.....	New York
Crosby, Henry Barrett, Jr.....	Paterson, N. J.
Dominick, William Francis, A.B., <i>Yale</i>	New York
Fowler, Lawrence Hall, A.B., <i>Johns Hopkins</i>	Catonsville, Md.
Gales, Weston Spies, A.B., <i>Yale</i>	Elizabeth, N. J.
Gibbs, Warren Rockwood.....	Chicago, Ill.
Godwin, Herbert.....	New York
Hanemann, John Theodore.....	New York
Harmon, Arthur Loomis.....	Chicago, Ill.
Hewitt, Edward Shepard.....	Brooklyn
Jacoby, George Washington.....	New York
Knight, Harold Bartlett.....	New York
Lane, Clarence James.....	Mt. Vernon, N. Y.
Lang, Eugene Jerome.....	New York
Lay, Charles Downing.....	Stratford, Conn.
Lefferts, Franklin Baker.....	New York
Le Prince, Leon Fernand.....	New York
Lockwood, Frank Thornton.....	Paterson, N. J.

Lyall, Earl Harvey, A.B., <i>Amherst</i>	New York
McKinley, James Graham.....	New York
Parke, Julius Leonard, A.B., <i>Yale</i>	Cincinnati, O.
Peck, Charles Fletcher.....	Englewood, N. J.
Robinson, Fletcher Albert.....	New York
Rogers, William Jordan.....	Newburgh, N. Y.
Schanck, William Hunt.....	New York
Scherrer, Josef Anton.....	Indianapolis, Ind.
Schoen, Eugene John.....	New York
Seifert, Karl Francis Joseph.....	New York
Strassburger, William Joseph.....	Alleghany, Pa.
Sutton, Frederick Judson Holden, A.B., <i>Princeton</i>	Audubon Park, N. Y.
Upton, Harbrough Desmond.....	New York
Warren, Frederick Bryant.....	North Adams, Mass.
Warren, William Tilman, B.S., <i>Alabama Polytechnic Inst.</i>	Montgomery, Ala.
Willson, Fred Fielding.....	Bozeman, Mont.
Wilson, Robert Paddock, Ph.B., <i>Wesleyan Univ.</i>	Middletown, Conn.
Wood, Norton Ellsworth.....	New York

FIRST YEAR CLASS

Mining Engineers.....	32
Civil ".....	26
Electrical ".....	54
Mechanical ".....	30
Chemists.....	10
Architects.....	41

193

SPECIAL STUDENTS

MINING ENGINEERS

Case, George Davenport.....	Detroit, Mich.
Hately, John George.....	Chicago, Ill.
Higgins, James Edward.....	Butte City, Mont.
Hoggatt, Wilford Bacon, U. S. Naval Acad., LL.B., <i>Columbia</i> , Juneau, Alaska	
Ingle, John David, B.S., <i>Rose Polytechnic Inst.</i>	Oakland City, Ind.
Lloyd, Nafew Joseph.....	New York
Moffatt, Edward Stewart, Jr.....	Scranton, Pa.
Newman, Ezekiel Simeon, Jr.....	El Paso, Tex.
Robeson, Anthony Maurice.....	New York
Rogers, Alexander Parker, C.E., <i>Columbia</i> ; Ph.B., <i>Yale</i>	New York
Van Winkle, Charles Thorne, Ph.B., <i>Yale</i>	Ridgefield, Conn.
Wagner, Otto.....	Red Bank, N. J.
Williams, John Townsend, Jr.....	Stamford, Conn.

CIVIL ENGINEERS

Boardman, Francis, A.B., <i>Yale</i>	Nutley, N. J.
Newlands, Donald McMillan.....	Buffalo, N. Y.

ELECTRICAL ENGINEERS

Buitrago, Rafael Diaz.....	New York
Huntington, Frederick Wolcott, E.M., <i>Columbia</i>	Brooklyn
Peyser, Harold, B.S., <i>N. Y. City College</i>	New York

METALLURGICAL ENGINEER

Randolph, Edward, B.L., <i>Memphis Law School</i>	Newark, N. J.
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ARCHITECTS

Allen, Jerome Ripley, A.B., <i>Williams</i>	Greenfield, Mass.
Beadel, Gerald Woodward.....	New Brighton, N. Y.
d'Hauteville, Paul Alexander Girard, A.B., <i>Cambridge</i>	Newport, R. I.
Dill, Henry Taylor.....	St. Louis, Mo.
Eskesen, Laurids Boyenhardt.....	Matawan, N. J.
Freund, John, Jr.....	Hastings, N. Y.
Hall, Harold.....	Brooklyn
Pigveron, William Golder.....	New York
Pino, Pasquale.....	New York
Pollmar, Frederick Carl.....	Detroit, Mich.
Porter, James Foster, A.M., <i>Harvard</i>	Chicago, Ill.
Russ, William Earl.....	Dayton, Ohio
Sander, Edwin Jacob.....	New York
Schalkenbach, Robert Nicholas.....	Jersey City, N. J.
Schumm, Walter Frederick.....	Chicago, Ill.
Steven, H. Fairchild.....	New York
Strauss, Malcolm Atherton.....	New York

SPECIAL STUDENTS

Mining Engineers.....	13
Civil Engineers.....	2
Electrical Engineers.....	3
Metallurgical Engineer.....	1
Architects.....	17
	<hr/>
	36

CANDIDATES FOR THE DEGREE OF MASTER OF ARTS

Bamberger, Ernest.....	Salt Lake City, Utah
Williams College, A.B. (1898)	
<i>Mining, Chemistry, Mineralogy</i>	
Becket, Frederick Mark.....	New York
McGill University, A.B. (1895)	
<i>Electrical Engineering, Chemistry</i>	
Duff, William Archibald.....	New York
McGill University, A.B. (1894)	
<i>Electrical Engineering, Chemistry</i>	

Le Prince, Joseph Albert Augustin.....	New York
Columbia University, C.E. (1898)	
<i>Metallurgy, Mining, Geology</i>	
Morse, Robert Gorham.....	Falmouth, Mass.
Harvard University, A.B. (1896)	
<i>Metallurgy, Chemistry</i>	
Scott, George Cole.....	Richmond, Va.
Princeton University, C.E. (1898)	
<i>Architecture, Chemistry</i>	
For Degree of Master of Arts.....	6

CANDIDATES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Gallatin, Albert Rolaz.....	New York
Columbia University, A.B. (1891); E.E. (1898)	
<i>Electrical Engineering, Mechanics</i>	
Hildburgh, Leo Walter.....	New York
Columbia University, E.E. (1897); A.M. (1898)	
<i>Electrical Engineering, Mining, Chemistry</i>	
For Degree of Doctor of Philosophy.....	2
Total.....	8

SUMMARY
UNDERGRADUATE STUDENTS

	First Year	Second Year	Third Year	Fourth Year	Totals
SCHOOL OF MINES					
Mining Engineering.....	32	18	10	4	64
Metallurgy.....	..	..	1	..	1
SCHOOL OF CHEMISTRY.....	10	10	8	5	33
SCHOOL OF ENGINEERING					
Civil Engineering.....	26	13	11	9	59
Electrical Engineering.....	54	37	25	19	135
Mechanical Engineering....	30	6	..	..	36
SCHOOL OF ARCHITECTURE....	41	25	7	5	78
	193	109	62	42	406
Special Students.....					36
Graduate Students :					
For Degree of Master of Arts.....					6
" " Doctor of Philosophy.....					2
					8
STUDENTS PRIMARILY REGISTERED UNDER THIS FACULTY.....					450
STUDENTS FROM OTHER FACULTIES OF THE UNIVERSITY :					
From the College.....					15
From the School of Pure Science.....					5
TOTAL.....					470

NOTE

At Columbia, the Faculties of Philosophy, Political Science, and Pure Science conduct the work frequently organized in the United States as a graduate school. The organization by separate faculties is preferred at Columbia, because it more clearly differentiates the work of a college from that of a university, the chief object of the former being to give a liberal education, and the chief object of the latter to make specialists, and more clearly distinguishes the main lines of university work from each other; and, also, because it is hoped at Columbia, in course of time, to make all of the professional schools of the University graduate schools. The three Faculties of Philosophy, Political Science, and Pure Science conduct the non-professional work of the University. The details concerning each are given in the order of the establishment of the three faculties at Columbia University.

SCHOOL OF POLITICAL SCIENCE

The following departments are represented in the Faculty :

POLITICAL ECONOMY AND STATISTICS	CONSTITUTIONAL LAW
FINANCE	ADMINISTRATIVE LAW
ECONOMIC THEORY	INTERNATIONAL LAW
SOCIOLOGY	CRIMINAL LAW
HISTORY	ROMAN LAW AND COM- PARATIVE JURISPRUDENCE
POLITICAL PHILOSOPHY	

Officers of the Faculty

JOHN W. BURGESS, Ph.D., LL.D.....	<i>Dean and Ex-Officio Member of the University Council</i>
FRANK J. GOODNOW, LL.D.....	<i>Secretary</i>
RICHMOND MAYO-SMITH, Ph.D.....	<i>Elected Delegate to the University Council</i>

The Faculty

SETH LOW, *President*

JOHN W. BURGESS, Ph.D., LL.D.,	<i>Professor of Political Science and Consti- tutional Law</i>
RICHMOND MAYO-SMITH, Ph.D.,	<i>Professor of Political Economy and Social Science</i>
MUNROE SMITH, A.M., J.U.D.,	<i>Professor of Roman Law and Comparative Jurisprudence</i>
FRANK J. GOODNOW, LL.D.,	<i>Professor of Administrative Law</i>

EDWIN R. A. SELIGMAN, LL.B., Ph.D., *Professor of Political Economy and Finance*

HERBERT L. OSGOOD, Ph.D., *Professor of History*

* WILLIAM A. DUNNING, Ph.D., *Professor of History and Political Philosophy*

* JOHN BASSETT MOORE, A.B., *Hamilton Fish Professor of International Law and Diplomacy*

FRANKLIN H. GIDDINGS, Ph.D., *Professor of Sociology*

JOHN B. CLARK, Ph.D., *Professor of Political Economy*

JAMES HARVEY ROBINSON, Ph.D., *Professor of History*

WILLIAM MILLIGAN SLOANE, Ph.D., L.H.D., *Seth Low Professor of History*

EDMOND KELLY, A.M., *Lecturer on Municipal Politics*

Other Officers

WILLIAM R. SHEPHERD, Ph.D., *Prize Lecturer 1898-1901*

WILLIAM Z. RIPLEY, Ph.D., *Prize Lecturer 1896-99 on Physical Geography and Ethnology*

GEORGE JAMES BAYLES, Ph.D., *Prize Lecturer 1897-1900 in Ecclesiastical Organization and Government in the United States*

ARTHUR M. DAY, A.M., *Assistant in Economics*

GENERAL STATEMENT

The Faculty of Political Science has charge of the university courses of study and research in political and social science, including history, economics, and public law.

The School of Political Science was opened on Monday, the fourth day of October, 1880.

It is the purpose of the school to give a complete general view of all the subjects of public policy, both internal and external, from the threefold point of view of history, law, and philosophy. The prime aim is therefore the development of all the branches of the political and social sciences. The secondary and practical objects are:

(a) To fit young men for all political branches of the public service.

(b) To give an adequate economic and legal training to those who intend to make journalism their profession.

(c) To supplement, by courses in public law and comparative jurisprudence, the instruction in private municipal law offered by the Faculty of Law.

(d) To educate teachers of political and social science.

To these ends courses of study are offered of sufficient duration to enable the student not only to attend the lectures and recitations with the professors, but also to consult the most approved treatises upon the political sciences and to study the sources of the same.

Young men who wish to obtain positions in the United States Civil Service—especially in those positions in the Department of State for which special examinations are held—will find it advantageous to follow many of the courses under the Faculty of Political Science. Some of the subjects upon which applicants for these positions are examined are treated very fully in the curriculum

* Absent on leave.

of the school. Thus, extended courses of lectures are given on political geography and history, diplomatic history and international law, government, and administration.

The work in economics and sociology falls under three heads, viz.: the university courses of instruction in the various departments of economic and social science, the work in the statistical laboratory, and the "field work," or practical work in connection with the Charity Organization Society, the Brooklyn Bureau of Charities, the State Charities Aid Association, the University Settlement Society of New York City, and the East Side House. These are fully explained in the detailed circular of the School of Political Science.

ADMISSION AND ATTENDANCE

Admission to the School of Political Science is ordinarily granted to students who have completed the curriculum of some college in good standing at least to the close of the Junior year. Other persons of suitable age and attainments may be admitted, to pursue special or partial courses, with the consent of the Dean and of the instructor. The lectures are also open to the public, on payment of an auditor's fee, and with the consent of the Dean and of the instructor. Auditors do not have, and cannot receive, any university recognition whatever. There are no formal examinations for admission. Applications for admission to the School of Political Science are received at any time by the Secretary, but it is generally advisable that they be presented, if possible, at the beginning of the academic year.

Students enrolled either in the General, in the Union, or in the Jewish Theological Seminary, in the City of New York, who may be designated for the privilege by the authorities of those institutions, and accepted by the President of Columbia University, are admitted to the courses offered by the Faculty of Political Science free of charge for tuition.

By the terms of an alliance between Columbia University and Teachers College, at Morningside Heights, duly qualified students of Teachers College are permitted to enter courses offered by the Faculty of Political Science either as candidates for degrees or as special students.

All of these institutions offer reciprocal privileges to students of Columbia University.

An application for admission may be made by filling out and depositing a registration blank at the office of the Dean of the Faculty of Political Science, or at such other place as may be designated from time to time, for the purpose of registration.

Every student is required to file a list of his studies for the academic year at the time he registers, or within one week thereafter, at the office of the Bursar. If he subsequently wishes to make any change in his studies he must file written notice of his wish at the Dean's office, and must obtain the assent of the Dean.

Immediate written notice must be given to the Dean of any change of address.

Admission to the School of Political Science does not imply admission to candidacy for a degree. The conditions of candidacy for the several degrees are given below.

ADMISSION TO OTHER COURSES

Any duly matriculated university student is at liberty to combine courses of study and investigation under this faculty with courses offered by the College or by the Faculties of Philosophy, Law, Medicine, Pure Science, and Applied Science without any additional fee.

Undergraduate studies of particular value to students in this school are as follows :

	Hours per week.
Rapid Survey of Mediæval and Modern History	3
Ancient and Mediæval History	2
Modern European History	2
English History	2
American History	3
Outlines of Economics (second half-year)	3
Economic History (first half-year)	3

Among the cognate courses given by the Faculty of Philosophy are :

History of philosophy, 2 hours a week ; ethics, 2 hours a week ; biological anthropology, 2 hours a week ; readings in Gaius and Ulpian, 1 hour a week ; readings in Anglo-Saxon law ; courses in the various modern languages, and others.

FEES

(See page 22)

CANDIDATES FOR A DEGREE

Students are received as candidates for the degree of Bachelor of Arts, Master of Arts, Master of Laws, or Doctor of Philosophy.

If the applicant is a candidate for a degree, he must file a certificate, sufficient to furnish evidence of his completion of the Junior year, or if he holds a degree from any institution, he must file diplomas or certificates sufficient to furnish evidence of such degree or degrees. Blanks for this purpose may be secured at the Dean's office. Certificates of graduation or dismissal from institutions of learning in foreign countries are also accepted. The certificates should be accompanied by catalogues or calendars of the colleges or other institutions of advanced grade at which the student has previously studied, which must be marked so as to show clearly his course of study there. This condition may be dispensed with in the case of those colleges and institutions whose bachelor's degree is recognized by the University Council as a basis for the higher degrees.

Students may present themselves for examination for a degree at any time during the year whenever the requirements as to residence and an essay or dissertation have been complied with.

COURSES OF INSTRUCTION

For the courses offered in 1898-99, see departmental statements, as follows.

History and Political Philosophy, page 109

Public Law and Comparative Jurisprudence, page 117

Economics and Social Science, page 73

For more detailed accounts of the courses and for the tender of 1899-1900, application should be made for the circular of the Schools of Philosophy, Political Science, and Pure Science.

Seminars

Outside of the regular instruction in the various subjects by lecture, it is the intention to furnish the students of the school an opportunity for special investigation of historical, legal, economic, and social questions under the direction of the professors. This is done by means of original papers prepared by the students. The papers are read before the professor and the students, and are then criticised and discussed. There will be at least one seminar in each subject. The number of meetings and the topics to be discussed are determined each year. Attendance at the seminar in the major subject is necessary on the part of candidates for the degree of Master of Arts or Doctor of Philosophy.

There are also preliminary seminars in history and political economy, designed primarily for those who are not fully prepared for the more advanced work. A preliminary seminar taken by a candidate for the degree of Bachelor of Arts will count for one hour toward the fifteen hours necessary for a degree.

ORDER OF STUDIES

The following courses are open to seniors in Columbia College.

- | | | |
|-----------|-------------------|---|
| History | 7. | Political and Constitutional History of Rome. |
| " | 11. | Introduction to Modern European History. |
| " | 14 ^a . | Antecedents and Opening of the French Revolution. |
| " | 14 ^b . | The Age of the Revolution, 1791-1815. |
| " | 16. | Constitutional History of England to 1689. |
| " | 30. | Transitions in American History. |
| " | 31. | Constitutional History of the United States. |
| " | 40. | History of Political Theories. |
| Economics | 3. | Practical Political Economy. |
| " | 4. | Science of Finance. |
| " | 11. | Communistic and Socialistic Theories. |
| " | 12. | Theories of Social Reform. |
| Sociology | 15. | Principles of Sociology. |
| " | 16. | Applied Anthropology. |

SCHOOL OF PHILOSOPHY

The following departments are represented in the Faculty :

ENGLISH	LATIN LANGUAGE AND LIT-
ENGLISH LANGUAGE AND	ERATURE
LITERATURE	MUSIC
LITERATURE	PHILOSOPHY AND EDUCATION
RHETORIC	PSYCHOLOGY
GERMANIC LANGUAGES AND	ROMANCE LANGUAGES AND
LITERATURES	LITERATURES
GREEK LANGUAGE AND	SEMITIC LANGUAGES AND
LITERATURE	RABBINICAL LITERATURE
INDO-IRANIAN LANGUAGES	

Officers of the Faculty

NICHOLAS MURRAY BUTLER, Ph.D., LL.D., *Dean and Ex-Officio Member of
the University Council*

EDWARD DELAVAN PERRY, Ph.D., *Secretary and Elected Delegate to the
University Council*

The Faculty

SETH LOW, LL.D., *President*

* THOMAS RANDOLPH PRICE, M.A., LL.D., *Professor of the English Language
and Literature*

HARRY THURSTON PECK, Ph.D., *Professor of the Latin Language and Lit-
erature*

NICHOLAS MURRAY BUTLER, Ph.D., LL.D., *Professor of Philosophy and
Education*

WILLIAM HENRY CARPENTER, Ph.D., *Professor of Germanic Philology*

JAMES MCKEEN CATTELL, Ph.D., *Professor of Psychology*

EDWARD DELAVAN PERRY, Ph.D., *Jay Professor of the Greek Language and
Literature*

ABRAHAM VALENTINE WILLIAMS JACKSON, Ph.D., *Professor of the Indo-
Iranian Languages*

ADOLPHE COIN, LL.B., A.M., *Professor of the Romance Languages and
Literatures*

GEORGE EDWARD WOODBERRY, A.B., *Professor of Literature*

BRANDER MATTHEWS, A.M., LL.B., *Professor of Literature*

RICHARD JAMES HORATIO GOTTHEIL, Ph.D., *Professor of Rabbinical Liter-
ature and the Semitic Languages*

HENRY ALFRED TODD, Ph.D., *Professor of Romance Philology*

GEORGE RICE CARPENTER, A.B., *Professor of Rhetoric and English Compo-
sition*

* Absent on leave.

JAMES RIGNALL WHEELER, Ph.D., *Professor of Greek*

JAMES HERVEY HYSLOP, Ph.D., *Professor of Logic and Ethics*

JAMES CHIDESTER EGBERT, Jr., Ph.D., *Adjunct Professor of Latin*

CARLO LEONARDO SPERANZA, A.M., B. ès L., *Adjunct Professor of the Romance Languages and Literatures*

CALVIN THOMAS, A.M., *Professor of the Germanic Languages and Literatures*

EDWARD ALEXANDER MACDOWELL, Mus.D., *Professor of Music*

NOTE.—For details as to other officers of instruction, see departmental statements.

GENERAL STATEMENT

The Faculty of Philosophy has charge of the university courses of instruction and research in philosophy, philology, and letters. Any duly matriculated university student is at liberty to combine courses of study and investigation under this faculty with courses offered by the Faculties of Law, Medicine, Political Science, Pure Science, and Applied Science.

Students are received either as candidates for the degrees of Master of Arts and Doctor of Philosophy, or to pursue special or partial courses. Some courses of lectures are open to the public, men and women alike, on payment of an auditor's fee. No auditor will be admitted to any course without the consent of the instructor, previously obtained. Auditors do not have, and cannot receive, any university recognition whatever.

Students enrolled either in the General, the Union, or the Jewish Theological Seminary, in the City of New York, who may be designated for the privilege by the authorities of those institutions, and accepted by the President of Columbia University, are admitted to the courses offered by the Faculty of Philosophy free of any charge for tuition.

Students enrolled in the Art Schools of the Metropolitan Museum of Art, who may be designated for the privilege by the authorities of those schools, and accepted by the President of Columbia University, are permitted to attend the courses of lectures on archæology and æsthetics free of any charge for tuition.

Duly qualified students of Teachers College are permitted to enter the courses offered by the Faculty of Philosophy, either as candidates for degrees or as special students.

All of these institutions offer reciprocal privileges to students of Columbia University.

ADMISSION AND ATTENDANCE

Candidates for the degrees of Master of Arts and Doctor of Philosophy must hold a bachelor's degree from some college in good standing, or present satisfactory evidence of having completed an equivalent course of study at a foreign institution, and must remain in residence for not less than one and two years, respectively. They are required to pursue courses of study or research in one major and two minor subjects, but are not held to any fixed number of hours of attendance per week. University residence of not less than three years is usually necessary in order to obtain the degree of Doctor of Philosophy.

Candidates for the degree of Doctor of Philosophy who have been in residence at other universities are given credit for such residence.

Students who are not candidates for a degree are admitted to any courses which they are found competent to undertake.

There are no examinations for admission, either as candidates for a degree or as special students. Students are admitted at any time during the year, and may present themselves for examination for a degree whenever the requirements as to residence and an essay or dissertation have been complied with.

For fees see page 22.

COURSES OF STUDY AND RESEARCH

For the courses offered for 1898-99, see departmental statements as follows :

Philosophy and Education, page 151

Experimental Psychology, page 153

Greek (including Archæology and Epigraphy), page 105

Latin (including Epigraphy and Roman Archæology), page 115

English, page 95

Literature, page 97

Music, page 137

Germanic Languages, page 102

Romance Languages :

French, page 167

Italian, page 171

Spanish, page 171

Provençal, page 171

Portuguese and Rumanian, page 172

Romance Philology, page 172

Oriental Languages :

Semitic Languages, page 141

Indo-Iranian Languages, page 143

Study of Language, page 145

Courses at the Union Theological Seminary

New Testament Greek, page 108

For the courses to be offered for 1899-1900, application should be made for the circular of the Schools of Philosophy, Political Science, and Pure Science, and the various departmental circulars which may be had after April 15, 1899.

SCHOOL OF PURE SCIENCE

The following departments are represented in the Faculty :

ANATOMY ASTRONOMY BACTERIOLOGY BOTANY CHEMISTRY GEOLOGY	MATHEMATICS MECHANICS MINERALOGY PHYSICS PHYSIOLOGY ZOOLOGY
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Officers of the Faculty

- ROBERT S. WOODWARD, C.E., Ph.D. *Dean and Ex-Officio Member of the University Council*
- WILLIAM HALLOCK, A.B., Ph.D. *Secretary*
- JAMES F. KEMP, A.B., E.M. *Elected Delegate to the University Council*

The Faculty

SETH LOW, LL.D., *President*

- J. HOWARD VAN AMRINGE, Ph.D., L.H.D., LL.D., *Professor of Mathematics*
- OGDEN N. ROOD, A.M., *Professor of Physics*
- CHARLES F. CHANDLER, Ph.D., M.D., LL.D., *Professor of Chemistry*
- JOHN K. REES, A.M., E.M., Ph.D., *Professor of Astronomy and Director of the Observatory*
- JOHN G. CURTIS, A.M., M.D., *Professor of Physiology*
- ALFRED J. MOSES, E.M., Ph.D., *Professor of Mineralogy*
- GEORGE S. HUNTINGTON, M.D., *Professor of Anatomy*
- HENRY FAIRFIELD OSBORN, Sc.D., *Da Costa Professor of Zoölogy*
- EDMUND B. WILSON, Ph.D., *Professor of Invertebrate Zoölogy*
- JAMES F. KEMP, A.B., E.M., *Professor of Geology*
- WILLIAM HALLOCK, A.B., Ph.D., *Adjunct Professor of Physics*
- MICHAEL I. PUPIN, Ph.D., *Adjunct Professor of Mechanics*
- T. MITCHELL PRUDDEN, M.D., *Professor of Bacteriology*
- ROBERT S. WOODWARD, C.E., Ph.D., *Professor of Mechanics*
- THOMAS S. FISKE, A.M., Ph.D., *Professor of Mathematics*
- HAROLD JACOBY, Ph.D., *Adjunct Professor of Astronomy*
- FRANK N. COLE, Ph.D., *Professor of Mathematics*
- FREDERIC S. LEE, Ph.D., *Adjunct Professor and Demonstrator of Physiology*
- LUCIEN M. UNDERWOOD, Ph.D., *Professor of Botany*
- BASHFORD DEAN, Ph.D., *Adjunct Professor of Zoölogy*

NOTE.—For details as to other officers of instruction, see departmental statements.

GENERAL STATEMENT

The Faculty of Pure Science has charge of the university courses of instruction and research in all branches of pure science, and especially the supervision of candidates for the degrees of Master of Arts and Doctor of Philosophy in pure science. Students under other university faculties are also at liberty to pursue courses of study and investigation under this faculty.

Candidates for the higher degrees taking major subjects in pure science will be regarded as under the special jurisdiction of this faculty, and must apply to the Dean for registration before entering upon their work. The same registration requirement must also be complied with by students who desire to pursue special subjects under this faculty.

In the faculty are represented all the departments of the University which give instruction in pure science.

Graduate students, candidates for the degree of A.M. or Ph.D., are subject :

- 1st. To the general regulations of the University Council. (See p. 181.)
- 2d. To the special regulations of this faculty.

Special Regulations of the Faculty of Pure Science

The degree of Doctor of Philosophy is awarded on the basis of a thorough training in the methods of advanced work and investigation in some branch of science. The following statements are offered for the guidance of students. In the case of students of especial ability or exceptional previous training, the faculty may modify its usual regulations.

The student is expected to gain a sound general knowledge of the two minor subjects of his choice. In the major subject a much more thorough and special knowledge is required, particular importance being attached to training in research. In order to avoid undue specialization, no two subjects can be chosen from the same department without the consent of the faculty.

One year's study in residence in the University is required for the degree of Master of Arts, and three years' study for the degree of Doctor of Philosophy, at least one year of which shall be in residence. Candidates for either of these degrees are expected to devote at least one-half their time throughout their course of study to the major subject. In the case of laboratory courses this implies two days a week, or its equivalent, as determined by each department. Each minor subject is intended to occupy approximately one-fourth of the time during one year for the degree of Master of Arts, and during one or two years, according to the nature of the subject and the previous training of the candidate, for the degree of Doctor of Philosophy. It is expected that the third year of study, and in certain cases both the second and the third years, will be wholly devoted to the major subject and to investigation for the dissertation.

The approval of the subject of the essay required for the degree of Master of Arts, or the subject of the dissertation required for the degree of Doctor of Philosophy, as well as the essay or dissertation itself, rests with the instructor in charge of the candidate's major subject. It is desirable that these studies should be related, and, when practicable, that they should be treated respect-

ively as preliminary and completed investigations. Great importance is attached to the character of the final dissertation. While it must depend for acceptance chiefly on the subject-matter, it should show good literary workmanship, especially by directness and clearness of statement. It should demonstrate the author's capacity to do original scientific work and to render an intelligible account thereof. It should evince a familiarity with the literature of the subject and with the latest methods of research applicable to it. The treatment should be as concise as the nature of the work permits. Every dissertation should be preceded by a clear introductory statement setting forth the nature and the scope of the research, and be followed by a résumé of the results and the conclusions obtained. It should also be accompanied by a table of contents and by a list of the authorities consulted in its preparation.

Special Students

Students who are not candidates for a degree may be permitted to pursue such courses from among those offered by this faculty as they may be found qualified to enter upon. Each applicant must demonstrate his preparation for, and his ability to pursue, the course or courses selected, and of his qualifications the heads of the departments in which he proposes to study shall be the judges. In general these special courses are open only to advanced students.

COURSES OF STUDY

For the courses offered for 1898-99, see departmental statements as follows :

Mathematics, page 119

Mechanics, page 122

Astronomy, page 59

Physics, page 158

Chemistry, page 65

Mineralogy, page 128

Geology, page 100

Zoölogy, page 175

Botany, page 61

Physiology, page 163

Anatomy, page 51

Bacteriology, page 149

For more detailed accounts of the courses and for the tender of 1899-1900, application should be made for the circular of the Schools of Philosophy Political Science, and Pure Science.

REGISTER OF STUDENTS

Under the Faculties of Political Science, Philosophy, and Pure Science

- Abell, William Maitland.....New York
New York University, LL.M., 1884.
Yale University, A.B., 1887; A.M., 1893.
International Law, Sociology and Statistics, American History.
- Ackerman, William Alfred.....Ackermanville, Pa.
Lafayette College, A.B., 1894; A.M., 1897.
Education, Philosophy, Anthropology.
- Albright, Frank.....Easton, Pa.
Lafayette College, E.E., 1893; M.S., 1896.
Education, Philosophy.
- Allen, Alfred.....Alfred, N. Y.
Alfred University, A.B., 1886; A.M., 1888.
Literature.
- Anspacher, Louis Kaufman.....New York
College of the City of New York, A.B., 1897.
Philosophy, Ethics, History.
- Appleton, Floyd.....Plainfield, N. J.
Columbia University, A.B., 1894.
Sociology and Statistics, Constitutional Law, Philosophy.
- Armstrong, Henry Watson.....New York
Sociology and Statistics, Philosophy.
- Badley, Brenton Thoburn.....New York
Ohio Wesleyan University, A.B., 1897.
Philosophy, Ethics, Psychology.
- Baer, Samuel Harold.....Fort Smith, Ark.
University of Michigan, B.S., 1896.
University of Leipzig, Ph.D., 1898.
Chemistry.
- Banker, Howard J.....Schaghticoke, N. Y.
Syracuse University, A.B., 1892.
Botany, Bacteriology, Zoology.
- Bard, Harry Erwin.....Adams, N. Y.
Wabash College, A.B., 1894; A.M., 1898.
Education.
- Bartlett, Frederic Huntington.....Fayetteville, N. Y.
Harvard University, A.B., 1895.
Columbia University, A.M., 1898.
Literature, Education.

- Bauer, George Neander.....Minneapolis, Minn.
 Minnesota University, B.S., 1894.
 Iowa State University, M.S., 1893.
Astronomy, Mathematics, Mechanics.
- Becker, Carl Lotus.....Waterloo, Iowa
 Wisconsin University, B.L., 1896.
Constitutional Law, European History, International Law.
- Beebe, Charles William.....East Orange, N. J.
Zoology.
- Bewer, Julius August.....New York
 Union Theological Seminary, B.D., 1898.
Semitic Languages and Literatures, Greek.
- Bordwell, Walter Percy.Alameda, Cal.
 University of California, B.L., 1898.
*International Law, Constitutional Law, American History, English, German
 Philosophy, Education.*
- Bosse, Karl Kurt.....New York
 Cornell University, B.S., 1897.
Psychology, Anthropology, Zoology.
- Bouton, Archibald Lewis.....Cortland, N. Y.
 Amherst College, A.B., 1896.
Rhetoric.
- Bowman, George Sheldon.....Salem, Va.
 Roanoke College, A.B., 1894.
Constitutional Law, International Law.
- Brater, August William.....New York
 New York College of Pharmacy, Ph.G., 1894.
Chemistry, Physics, Mechanical Engineering.
- Brennan, John Woods.....St. Albans, Vt.
 Williams College, A.B., 1894.
Zoology, Bacteriology, Physiology.
- Briggs, Harry Stewart.....Lincoln, Neb.
Music.
- Briggs, Howard Appleton.....Lansingburg, N. Y.
 Williams College, A.B., 1897.
Sociology and Statistics, Church History.
- Britt, Albert.....Utah, Ill.
 Knox College, A.B., 1898.
Political Economy and Finance, Sociology and Statistics, American History.
- Brooks, Frank Hoag.....New York
 Columbia University, A.B., 1897.
Greek, Latin.
- Brydges, Ralph Lionel.....Islip, N. Y.
 Columbia University, A.M., 1896.
Philosophy, Anthropology, Sociology and Statistics.
- Burke, Edmund.....New York
 College of the City of New York, A.B., 1890.
Latin, Greek, Roman Archæology

- Burke, William Maxwell.....New York
Oberlin College, A.B., 1896; A.M., 1897.
Political Economy and Finance, Sociology and Statistics, American History, Philosophy.
- Burnside, Charles Howard.....Oskaloosa, Iowa
Penn College, B.S., 1896; M.S., 1898.
Columbia University, B.S., 1898.
Mechanics, Mathematics, Astronomy.
- Camerer, Emil Emerson.....New York
New York University, Ph.B., 1898; LL.B., 1897.
Administrative Law.
- Campbell, Given, Jr.....St. Louis, Mo.
St. Louis Medical College, M.D., 1889.
Zoology.
- Capen, Edward Warren.....Boston, Mass.
Amherst College, A.B., 1894.
Sociology and Statistics, Political Economy and Finance, European History.
- Chase, John Hildreth.....Bellows Falls, Vt.
Amherst College, B.S., 1896.
Sociology and Statistics, Political Economy and Finance, European History.
- Chase, Lewis Nathaniel.....Riverside, Cal.
Columbia University, A.B., 1895; A.M., 1898.
Literature, Anglo-Saxon.
- Chollet, Charles.....New York
Harvard University, A.B., 1887.
Romance Languages and Literatures, Latin.
- Colton, William Neely.....Mount Carmel, Ill.
Hobart College, A.B., 1897.
Political Economy and Finance, Sociology and Statistics, European History.
- Compton, Alfred Donaldson.....New York
College of the City of New York, B.S., 1897.
Literature, French.
- Conant, Roger Lewis.....Brooklyn
Columbia University, A.B., 1895.
Latin, Latin Archaeology, Greek.
- Connolly, Charles Parker.....New York
Dickinson College, A.B., 1895.
Sociology and Statistics, Political Economy and Finance, European History.
- Cooley, Le Roy Clark, Jr.....Poughkeepsie, N. Y.
Princeton University, A.B., 1897.
Sociology and Statistics, European History.
- Davenport, Frederick Morgan.....New Milford, Pa.
Wesleyan University, A.B., 1889.
Sociology and Statistics, Political Economy and Finance, European History.
- Davis, Bergen.....New York
Rutgers College, B.S., 1896.
Physics.

- Dearborn, George Van Ness. Nashua, N. H.
 Dartmouth College, B.L., 1890.
 Columbia University, M.D., 1893.
 Harvard University, A.M., 1896.
Psychology, Education, Anthropology.
- Denbigh, John Halliday. New York
 Oxford University, England, A.M., 1891.
Education.
- Dennis, Alfred Lewis Pinneo. New York
 Princeton University, A.B., 1896.
European History, American History, Semitic Languages and Literatures.
- Dike, Francis Harold. New York
 Columbia University, A.B., 1897.
Romance Languages and Literatures, European History.
- Dionne, Gustave Adolphe Léon New York
 Wooster University, A.B., 1893.
French.
- Doggert, Walton Hall. Laramie, Wyoming
Philosophy, Literature.
- Downer, Charles Alfred. New York
 College of the City of New York, A.B., 1886.
French, Romance Philology.
- Duggan, Stephen Pierce. New York
 College of the City of New York, B.S., 1890; M.S., 1897.
Constitutional Law, Sociology and Statistics, Education.
- Dyke, Charles Bartlett. Los Alamitos, Cal.
 Stanford University, A.B., 1898.
Education, Philosophy.
- Eckerson, Charles Hammond. Closter, N. J.
 Columbia University, M.E., 1898.
Geology, Metallurgy.
- Edgerton, Charles Eugene. Ithaca, N. Y.
 Hamilton College, A.B., 1882.
Political Economy and Finance, Sociology and Statistics, European History.
- Edwards, Wheeler Stuart. East Orange, N. J.
Physics, Chemistry, Zoölogy, Botany, Mineralogy.
- Einstein, Lewis. New York
 Columbia University, A.B., 1898.
Literature, History.
- Ellard, Charles Henry. Great Neck, L. I.
 Columbia University, A.B., 1897.
Chemistry.
- Eyer, George Alexander. New York
Mineralogy, Physics, Chemistry.
- Fiedler, Edward Charles, Jr. New York
Political Economy and Finance, European History, American History.
- Firth, Elmer Wallace. Brooklyn
 Cornell University, C.E., 1895.
 Columbia University, A.M., 1898.
Bacteriology, Botany, Chemistry.

- Flagler, Harry Harkness.....New York
Columbia University, A.B., 1897.
Music.
- Fowler, Wilson Warren.....Baltimore, Md.
Rutgers College, B.S., 1897.
Columbia University, A.M., 1898.
Education, Philosophy, Psychology.
- Fox, Houghton Kost.....Adrian, Mich.
Adrian College, A.B., 1895.
Sociology and Statistics, European History, Philosophy.
- French, Calvin Hiram.....Malone, N. Y.
University of Vermont, A.B., 1894.
Sociology and Statistics.
- Frost, Francis Le Jau, Jr.....Charleston, S. C.
Romance Languages and Literatures, Indo-Iranian.
- Fry, William Henry.....Brooklyn
Columbia University, A.B., 1897; A.M., 1898.
American History, European History, International Law, Latin.
- Gallatin, James Nicholson.....New York
Chemistry, Bacteriology, Physiology.
- Gandy, Newton St. Clair.....Colorado Springs, Col.
University of Denver, LL.B., 1898.
Roman Law and Comparative Jurisprudence, International Law, Administrative Law, Political Economy and Finance.
- Garabedian, Hohannes Barkev.....Harpoot, Turkey
Philosophy, Sociology and Statistics.
- Germann, George Balthasar.....Brooklyn
Columbia University, A.B., 1895.
Education, Psychology.
- Gerrard, Ernest Allen.....Columbus, Neb.
University of Nebraska, A.B., 1894.
Psychology, Music, Literature.
- Glasson, William Henry.....Ithaca, N. Y.
Cornell University, Ph.B., 1896.
Administrative Law, Constitutional Law, Political Economy and Finance.
- Gordon, George Andrew.....Amesbury, Mass.
Brown University, A.B., 1895; A.M., 1896.
Education, Philosophy, Psychology.
- Gotthelf, August Henry.....Hastings-on-Hudson, N. Y.
Columbia University, B.S., 1897; A.M., 1898.
Chemistry, Mineralogy, Physics.
- Gottschall, Louis.....New York
Columbia University, B.S., 1898.
Astronomy.
- Grannis, Appleton.....Caldwell, N. J.
Columbia University, A.B., 1893; A.M., 1898.
Philosophy, Ethics, European History.

- Gray, Henry David.....Auburn, N. Y.
 Colgate University, Ph.B., 1897.
 Columbia University, A.M., 1898.
Literature, Philosophy.
- Gray, Louis Herbert.....Newark, N. J.
 Princeton University, A.B., 1896; A.M., 1898.
Indo-Iranian Languages and Literatures, Semitic Languages and Literatures.
- Greenslet, Ferris.....Glens Falls, N. Y.
 Wesleyan University, A.B., 1897; A.M., 1898.
English Language and Literature, Philosophy.
- Griffiths, David.....Aberdeen, So. Dak.
 South Dakota Agricultural College, B.S., 1892; M.S., 1893.
Botany, Zoölogy.
- Groezinger, Christian.....Philadelphia, Pa.
Political Economy and Finance, Philosophy.
- Gundersen, Carl.....Portland, Oregon
 Leland Stanford, Jr., University, A.B., 1897.
Mathematics, Astronomy, Mechanics.
- Guthrie, William Buck.....Hopkinton, Iowa.
 Lenox College, B.S., 1893; State University of Iowa, Ph.B., 1893.
Political Economy and Finance, Sociology and Statistics, European History.
- Haas, Arthur.....New York
 College of the City of New York, A.B., 1894.
 Cooper Institute, B.S., 1898.
Chemistry.
- Haines, Edwin Irvine.....New Rochelle, N. Y.
Chemistry, Mineralogy.
- Hall, Everett Joel.....Passaic, N. J.
Chemistry.
- Harvey, Andrew Edward.....Detroit, Mich.
 Princeton University, A.B., 1898.
Sociology and Statistics.
- Harwood, Edward Charles.....North Ontario, Cal.
 Stanford University, A.B., 1895; A.M., 1896.
Latin, Greek.
- Hashi, Hagime.....Tokio, Japan
Sociology and Statistics.
- Hazen, Tracy Elliot.....New York
 University of Vermont, A.B., 1897.
Botany, Zoölogy, Geology.
- Heffelbower, George Frederick.....Ann Arbor, Mich.
 Michigan University, A.B., 1897; A.M., 1898.
Latin, Greek, Philosophy.
- Henderson, Arthur Merritt.....Nyack, N. Y.
Geology, Mineralogy.
- Herdman, Hugh Henry, Jr.....Morrisonville, Ill.
 Wabash College, A.B., 1896.
 Columbia University, A.M., 1898.
Literature, English Language and Literature.

- Hill, Benjamin Felix.....Austin, Texas
University of Texas, B.S., 1896; M.S., 1897.
Columbia University, A.M., 1898.
Geology, Paleontology, Mineralogy, Metallurgy.
- Hill, Bert Hodge.....Bristol, Vt.
University of Vermont, A.B., 1895.
Greek, Latin, Greek Archaeology.
- Hills, Franklin Grant.....Brooklyn
Chemistry.
- Himowich, Adolph Abram.....New York
New York University, B.S., 1886; M.S. and M.D., 1892.
Mechanics.
- Hino, Masumi.....Yamagotaken, Japan
Philosophy, Hebrew, History.
- Hishida, Seizi.....Kaizugun, Gifugen, Japan
Political Economy and Finance, Sociology and Statistics.
- Hoagland, Warren Lanning, Jr.....Jersey City, N. J.
Wesleyan University, A.B., 1898.
Sociology and Statistics, Political Economy and Finance, European History.
- Hodges, Archibald Livingston.....New York
Harvard University, A.B., 1883; A.M., 1897.
Latin.
- Holder, Oscar Howe.....New York
Harvard University, A.B., 1888; M.D., 1892.
Anatomy, Chemistry, Zoölogy.
- Hood, Edmund Lyman.....Berkeley, Cal.
Yale University, B.D., 1885.
University of California, A.M., 1896.
Sociology and Statistics.
- Howard, Lawrence Riggs.....Glencoe, Ill.
Williams College, A.B., 1898.
Sociology and Statistics, Political Economy and Finance, European History.
- Howell, Benjamin Rogers.....Rockville, Ind.
Wabash College, A.B., 1897.
Literature, English Language and Literature.
- Huntington, Lucius Stuart.....New York
American History, European History, Political Economy and Finance.
- Huntsman, Owen Benjamin.....Stroudsburg, Pa.
Harvard University, A.B., 1897; A.M., 1898.
Philosophy, Ethics, Psychology.
- Hyde, Henry St. John.....New York
Columbia University, Ph.B., 1896.
Chemistry, Physics.
- Irving, John Duer.....New York
Columbia University, A.B., 1896; A.M., 1898.
Geology, Chemistry, Mineralogy.
- Jeschke, Harry.....Cleveland, Ohio
Western Reserve University, A.B., 1895.
Columbia University, A.M., 1898.
Sociology and Statistics.

- Johnson, Alvin Saunders.....Dakota City, Neb.
University of Nebraska, A.B., 1897; A.M., 1898.
Political Economy and Finance, American History, Philosophy, Literature.
- Johnson, Reginald Hall.....Whitewater, Wis.
University of Wisconsin, A.B., 1896.
Literature, French.
- Jones, Frederick Bird.....Auburn, N. Y.
Colgate University, A.B., 1898.
Latin, Greek, Education.
- Jones, Thomas Jesse.....Greenfield, Ohio
Marietta College, A.B., 1897.
Sociology and Statistics, Political Economy and Finance.
- Kashiwa, Andrew Manjiro.....Miye Ken, Japan
Political Economy and Finance.
- Kasner, Edward.....New York
College of the City of New York, B.S., 1896.
Columbia University, A.M., 1897.
Mathematics, Mechanics, Philosophy.
- Kemp, William Cullen Bryant.....New York
Columbia University, LL.B., 1896.
Constitutional Law, Political Economy and Finance, American History.
- Keppler, Emil Alexander Charles.....New York
Columbia University, Ph.B., 1895; A.M., 1897.
Literature, Philosophy, English Language and Literature.
- Krans, Horatio Sheafe.....New York
Columbia University, A.B., 1894; A.M., 1897.
Literature, French.
- Kretz, Walter Coluzzi.....New York
Columbia University, A.B., 1896; A.M., 1897.
Astronomy, Mathematics, Mechanics.
- Laing, James Oliver.....Leavenworth, Kan.
University of Michigan, LL.B., 1898.
International Law, American History, Political Economy and Finance.
- Lambord, Benjamin Fulton, Jr.....Portland, Me.
Music.
- Lange, George Edward.....New York
International Law, Constitutional Law, Roman Law, European History, Sociology and Statistics, Political Economy and Finance.
- Langer, Samuel.....New York
College of the City of New York, B.S., 1895.
Education, Hebrew.
- Laughlin, Will Catesby.....Argentine, Kan.
Chemistry.
- Lawrence, Amos Edward.....Boston, Mass.
Physics.
- Lawrence, George Alfred.....New York
Leland Stanford, Jr., University, A.B., 1892.
Columbia University, M.D., 1895; A.M., 1896.
Zoology, Bacteriology, Ethnology, Embryology.

- Leffingwell, Ernest DeKovey..... Knoxville, Ill.
Trinity College, A.B., 1895.
Physics, Mathematics, Mechanics.
- Leo, Richard Leopold..... New York
Columbia University, Ph.B., 1895.
Music.
- Levine, David..... New York
College of the City of New York, A.B., 1896.
Semitic Languages and Literatures, Philosophy, Education.
- Lewis, Charles Smith..... New York
General Theological Seminary, B.D., 1895.
Johns Hopkins University, A.B., 1898.
Philosophy, Greek.
- Liknaitz, David..... Mitau, Russia
University of Pennsylvania, B.S., 1898.
Semitic Languages and Literatures, Philosophy.
- Linn, John Addams..... Chicago, Ill.
Lake Forest University, A.B., 1893.
European History, Political Economy and Finance.
- Lloyd, Ernest Herbert..... New York
European History, American History, Political Philosophy, Political Economy and Finance.
- Locke, Jesse Albert..... New York
Columbia University, A.B., 1880.
Literature, English.
- Long, Maxwell Washburn..... Flushing, N. Y.
European History, Political Economy and Finance, Political Philosophy, Criminal Law, Roman Law and Comparative Jurisprudence.
- Loos, Hermann Andreas..... New York
College of the City of New York, B.S., 1895.
Columbia University, A.M., 1898.
Chemistry, Mineralogy, Metallurgy.
- Lowe, Frederic William..... New York
European History, American History, Political Economy and Finance.
- Mac Cracken, George Gere..... New York
University of the City of New York, B.S., 1898.
Mechanics.
- Maclay, Robert..... New York
Political Economy and Finance, European History, American History.
- Magie, John Ernest..... New York
College of the City of New York, A.B., 1898.
Philosophy, Hebrew, Rhetoric.
- Manning, Edward Betts..... St. John, N. B.
Music.
- Martin, Hugh Whitfield..... New York
Music.
- Masury, John Wesley..... Centre Moriches, L. I., N. Y.
Chemistry, German.

- Matthews, William Henry.....Huntington, Mass.
Williams College, A.B., 1898.
Sociology and Statistics, Political Economy and Finance, Literature.
- McAlpin, Edwin Augustus, Jr.....Sing Sing, N. Y.
Princeton University, A.B., 1898.
American History, Sociology and Statistics.
- McComas, Henry Clay, Jr.....Baltimore, Md.
Johns Hopkins University, A.B., 1897.
Columbia University, A.M., 1898.
Sociology and Statistics, Political Economy and Finance, European History.
- Mereness, Newton Dennison.....Sharon, Wis.
University of Michigan, A.B., 1892; A.M., 1894.
American History, European History, Roman Law and Comparative Jurisprudence.
- Meyer, Charles Garrison.....New York
Criminal Law, American History, Administrative Law, European History, French.
- Milke, Edward E., Jr.....Greenville, N. J.
Chemistry.
- Miller, Joseph Warren, Jr.....Harrisburg, Pa.
Pennsylvania State College, B.S., 1897.
Mechanics, Mathematics, Astronomy.
- Mohr, Albert Gustav.....New York
College of the City of New York, A.B., 1895.
Political Economy and Finance.
- Morlath, William.....New York
New York College of Pharmacy, Ph.G., 1896.
Chemistry.
- Morse, Livingston Burrill.....Upper Montclair, N. J.
College of the City of New York, B.S., 1889.
European History.
- Munro, Alexander Allan.....Omaha, Neb.
Nebraska State University, A.B., 1884.
Political Economy and Finance, Sociology and Statistics, Education.
- Murray, Archibald.....Morristown, N. J.
Harvard University, A.B., 1896.
Physics.
- Nadeau, Oscar.....New York
Music, Philosophy, Psychology.
- Neal, John Randolph.....Rhea Springs, Tenn.
University of Tennessee, A.B., 1892.
Vanderbilt University, A.M., 1893; LL.B., 1895.
Constitutional Law, Political Economy and Finance, Roman Law and Comparative Jurisprudence.
- Nelson, Leon Maurice.....Brooklyn, N. Y.
University of Cincinnati, A.B., 1898.
Philosophy, Ethics, Education.

- Nicolson, John, Jr. New York
University of Virginia, B.L., 1892.
Anthropology.
- Ochiai, John Kichinosuké. Tokio, Japan
Philosophy, Anthropology, Music.
- Osborn, Thomas Dewitt. Sheepshead Bay, L. I.
European History, American History, Criminal Law, Political Economy and Finance.
- Oviatt, David Brainerd. New York
Cornell University, M.E., 1887 ; M.M.E., 1888.
Physics, Astronomy, Education.
- Paulmier, Frederick Clark. Madison, N. J.
Princeton University, B.S., 1894 ; M.S., 1896.
Zoölogy, Botany, Physiology, Music.
- Peck, George Williams, Jr. Roselle, N. J.
Cornell University, Ph.B., 1897.
European History, Sociology and Statistics.
- Perrin, Ernest Noël. New York
College of the City of New York, A.B., 1879.
Harvard University, A.B., 1882.
Columbia University, LL.B., 1885.
Romance Languages and Literatures, Education.
- Plum, Harry Grant. Iowa City, Ia.
Iowa State University, A.M., 1896.
European History, American History, Roman Law and Comparative Jurisprudence.
- Pope, Frederick John. Kingston, Ont.
Queen's University, A.M., 1891.
Chemistry, Geology, Metallurgy.
- Pope, Jesse Eliphalet. Minneapolis, Minn.
University of Minnesota, B.S., 1895 ; M.S., 1897.
Political Economy and Finance, Constitutional Law, Sociology and Statistics, Philosophy.
- Popper, William. New York
Columbia University, A.B., 1896 ; A.M., 1897.
Semitic Languages and Literatures, Anthropology.
- Pretzfeld, Charles Joseph. New York
Columbia University, A.B., 1898.
Chemistry, Physics, Mineralogy, Mechanical Engineering.
- Prevey, Comadore Edward. New Haven, Conn.
University of Wisconsin, B.L., 1895.
Sociology and Statistics, Political Economy and Finance, American History.
- Randolph, Corliss Fitz. New York
Alfred University, A.B., 1888 ; A.M., 1888.
Latin, Greek.
- Raper, Charles Lee. Greensboro, N. C.
Trinity College, A.B., 1892.
American History, European History, Political Economy and Finance.

- Rawles, William A.Bloomington, Ind.
Indiana University, A.B., 1884 ; A.M., 1895.
Administrative Law, Constitutional Law, Anthropology.
- Rawlins, Herbert Noël.New York
European History.
- Reich, Sigmund.New York
College of the City of New York, A.B., 1895.
Semitic Languages and Literatures, English, German.
- Remy, Arthur Frank Joseph.New York
College of the City of New York, A.B., 1890.
Columbia University, A.M., 1897.
Germanic Languages and Literatures, Indo-Iranian.
- Rhodes, Jeremiah M.Hiawatha, Kan.
Indiana State University, A.B., 1894.
Harvard University, A.M., 1898.
Constitutional Law, American History, Administrative Law.
- Richardson, Robert Kimball.New Haven, Conn.
Yale University, A.B., 1898.
European History, American History, International Law.
- Riederer, Herman Simon.New York
College of the City of New York, B.S., 1898.
Chemistry, Physics, Mineralogy.
- Robinson, Franklin Whittmann.New York
College of the City of New York, B.S., 1895.
Music.
- Rogers, Henry Huddleston, Jr.New York
Chemistry, International Law.
- Ruddell, Frank Stallo.Indianapolis, Ind.
Stanford University, A.B., 1897.
Indiana Law School, LL.B., 1898.
Political Economy and Finance, Roman Law and Comparative Jurisprudence, American History.
- Rupp, August.New York
College of the City of New York, A.B., 1884.
Latin, Roman Archaeology, Greek.
- Salant, Louis.New York
College of the City of New York, A.B., 1898.
Latin.
- Sanger, Eli Louis.Dallas, Tex.
Chemistry.
- Sano, Zensaku.Tokio, Japan
Political Economy and Finance.
- Schell, Richard Montgomery.New York
Columbia University, Ph.B., 1895.
Sociology and Statistics, Political Economy and Finance, Philosophy, English.
- Scherr, Emilius William, Jr.New York
College of the City of New York, A.B., 1896.
Columbia University, A.M., 1898.
Chemistry, Zoölogy, Electrical Engineering, Metallurgy.

- Schley, Grant Barney, Jr. Far Hills, N. J.
European History, American History, Political Economy and Finance.
- Schroeder, Detlef Heinrich. Council Bluffs, Ia.
 Iowa Wesleyan University, A.B., 1895.
 Mt. Pleasant, Ia., University, A.M., 1898.
 Union Theological Seminary, B.D., 1808.
Semitic Languages and Literatures, Church History.
- Schuyler, Livingston Rowe. New York
 College of the City of New York, A.M., 1894.
 General Theological Seminary, S.T.B., 1894.
European History, American History, Philosophy.
- Sears, Stephen Faunce. New York
 Harvard University, A.B., 1896.
 Columbia University, A.M., 1898.
Literature, English Language and Literature.
- Shattuck, Frederick Gaut. New York
Music.
- Shepard, Thomas Osborne. New York
 Harvard University, A.B., 1888; M.D., 1892.
Zoology, Chemistry, Anatomy.
- Sheppard, James Joseph. New York
 Harvard University, A.B., 1894.
American History.
- Shotwell, James Thomson. Strathroy, Ont.
 Toronto University, A.B., 1898.
European History, American History, Political Economy and Finance.
- Sigafoos, Orville Lincoln. Hastings-on-Hudson, N. Y.
 Lafayette College, A.M., 1894.
Literature.
- Simmons, Ward Weaver Brooklyn
 Brooklyn Polytechnic Institute, B.S., 1897.
Chemistry, Physics, Mineralogy.
- Sinclair, Upton Beall, Jr. New York
 College of the City of New York, A.B., 1897.
Music.
- Sites, Clement Moore Lacey. New York
 Ohio Wesleyan University, A.B., 1887; A.M., 1890.
 National University Law School, LL.B., 1890.
International Law, Administrative Law, Political Economy and Finance, Sociology and Statistics, Philosophy.
- Smith, Cecil Henry. Oakland, Cal.
 Stanford University, A.B., 1896.
Philosophy, Education, Rhetoric.
- Smith, Charles Ellis. Detroit, Mich.
 Cornell University, A.B., 1896.
Philosophy, Political Economy and Finance.
- Smith, Edward Laurence. Newark, Del.
 Delaware College, A.B., 1896.
Romance Languages and Literatures, German.

- Smith, William Roy.....Austin, Texas
University of Texas, A.B., 1897; A.M., 1898.
American History, European History, Constitutional Law, German.
- Soper, George Albert.....New York
Rensselaer Polytechnic Institute, B.S., 1895.
Columbia University, A.M., 1898.
Chemistry, Zoölogy, Physics.
- Spingarn, Joel Elias.....New York
Columbia University, A.B., 1895.
Literature, Italian.
- Stearn, Sidney.....Cleveland, Ohio
Political Economy and Finance, European History, International Law, Philosophy.
- Steele, David McConnell.....New York
University of Wooster, A.B., 1895; A.M., 1898.
Philosophy, English Language and Literature, European History.
- Stern, Nathan.....New York
Columbia University, A.B., 1898.
Semitic Languages and Literatures, Sociology and Statistics.
- Stone, Nahum Isaac.....New York
Gymnasium of Odessa, Testimonium Maturitatis, 1891.
Administrative Law.
- Stotler, John Holderman.....New York
Buffalo University, M.D., 1893.
Zoölogy, Geology.
- Stratford, Arthur C.....Jersey City, N. J.
European History, American History, Political Economy and Finance.
- Stuchell, William Torrence.....New York
Harvard University, A.B., 1894.
Sociology and Statistics, European History.
- Sumner, Francis Bertody.....New York
University of Minnesota, B.S., 1894.
Zoölogy, Physiology, Psychology.
- Swanton, John Reed.....Roxbury, Mass.
Harvard University, A.B., 1896; A.M., 1897.
Anthropology.
- Takasu, Taske.....Shimonoseki, Japan
Political Economy and Finance.
- Tanner, Edwin Platt.....Paterson, N. J.
Columbia University, A.B., 1897; A.M., 1898.
American History, European History, Sociology and Statistics.
- Taylor, Sherburne Frost.....Schoharie, N. Y.
Cornell University, B.S., 1897.
Chemistry, Education.
- Temple, Truman Roswell.....Brooklyn
Philosophy, Semitic Languages and Literatures, English, Greek, History.
- Tenney, Alvan Alonzo.....Brooklyn
Columbia University, A.B., 1898.
Sociology and Statistics, Political Economy and Finance, Constitutional Law.

- Tombo, Rudolf, Jr. New York
 College of the City of New York, B.S., 1895.
 Columbia University, A.M., 1898.
Germanic Languages and Literatures, English Language and Literature.
- Torrey, John Cutler. Burlington, Vt.
 University of Vermont, A.B., 1898.
Zoölogy, Physiology, Botany.
- Tsilka, Gregory Marcus. Monastir, Turkey
Political Economy and Finance, Philosophy.
- Underhill, John Garrett. Brooklyn
 Polytechnic Institute, A.B., 1894.
 Columbia University, A.M., 1896.
Literature, French, Philosophy.
- Vail, Newton Foster. Geneva, N. Y.
 Hobart College, A.B., 1890.
 Yale University, A.B., 1892.
 Hobart College, A.M., 1897.
Latin, Greek.
- Veach, Robert Wells. New Castle, Pa.
 Westminster College, B.L., 1896.
Philosophy, Sociology and Statistics.
- Wait, Benjamin Wofford. Bowman, S. C.
 Wofford College, A.B., 1895.
 Vanderbilt University, A.M., 1897.
Political Economy and Finance, Sociology and Statistics, Constitutional Law.
- Walcott, Gregory Dexter. Warren, R. I.
 Brown University, A.B., 1897.
Philosophy, Greek, Hebrew.
- Waldman, Morris David. New York
 New York University, Ph.B., 1898.
Semitic Languages and Literatures, Philosophy.
- Ward, Frank Edwin. New York
Music.
- Ware, Edward Twichell. Hartford, Conn.
 Yale University, A.B., 1897.
Sociology and Statistics.
- Weil, Henry Lehman. New York
Political Economy and Finance, Sociology and Statistics, American History, European History.
- Wessell, Arthur Lewis. New York
 New York Law School, LL.B., 1898.
International Law.
- Whitaker, Charles Hurlbut. Bushkill, Pa.
 Princeton University, A.B., 1887.
American History, European History, Philosophy.
- Wiers, Edgar Swan. Cleveland, O.
 Western Reserve University, A.B., 1895.
 Columbia University, A.M., 1898.
Sociology and Statistics.

- Willett, Allan Herbert.....Urbana, O.
Brown University, A.B., 1896; A.M., 1898.
Political Economy and Finance, Sociology and Statistics, Political Philosophy.
- Williams, James Mickel.....Waterville, N. Y.
Brown University, A.B., 1898.
Sociology and Statistics, Political Economy and Finance, European History.
- Williams, John.....New York
Trinity College, A.B., 1890; A.M., 1893.
Philosophy, Ethics, Anthropology.
- Wilson, John Henry.....New York
St. Stephen's College, A.B., 1896.
New York University, A.M., 1898.
St. Francis Xavier College, A.M., 1898.
Education, Psychology, Philosophy.
- Wollmann, Conrad.....New York
Gymnasium, Jena, Zeugnis der Reife, 1887.
New York Law School, LL.B., 1898.
Latin, Greek, French.
- Woodward, Charles Guilford.....Hartford, Conn.
Trinity College, A.B., 1898.
Political Economy and Finance, History and Political Philosophy, Sociology and Statistics.
- Woodworth, Robert Sessions.....Berlin, Conn.
Amherst College, A.B., 1891.
Harvard University, A.B., 1896; A.M., 1897.
Psychology, Philosophy, Education.
- Worm, Oscar Rudolph Waldimar.....New York
College of the City of New York, B.S., 1898.
European History, American History, International Law.
- Wright, Alfred.....Washington, D. C.
Chemistry.
- Wyman, Arthur James.....Cambridge, Mass.
Amherst College, A.B., 1898.
Sociology and Statistics.
- Yohannan, Isaac.....New York
Columbia University, A.B., 1897.
Semitic Languages and Literatures, Indo-Iranian.
- Yoneda, Shotaro.....Nara, Japan
Sociology and Statistics, Political Economy and Finance, Constitutional Law.
- Zeiger, Franklin.....Montclair, N.
Columbia University, A.B., 1898.
Philosophy, Psychology, Sociology and Statistics.
- Zerban, Alexander Henry William.....New York
Columbia University, A.B., 1897.
Physics, Chemistry, Bacteriology.
- Zizinia, Paul Thomas.....New York
Administrative Law.

SUMMARY

STUDENTS PRIMARILY REGISTERED UNDER THESE FACULTIES.....	252
STUDENTS FROM OTHER FACULTIES OF THE UNIVERSITY :	
Seniors in the College.....	47
From the School of Law.....	74
From the School of Medicine.....	21
From the Schools of Applied Science.....	20
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STUDENTS FROM BARNARD COLLEGE.....	162
	67 *
STUDENTS FROM TEACHERS COLLEGE.....	53 †
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TOTAL.....	534

* Details stated under head of Barnard College.

† Details stated under head of Teachers College.

BARNARD COLLEGE

DEAN

EMILY JAMES SMITH, A.B.

TRUSTEES

ABRAM S. HEWITT, LL.D., *Chairman*
MRS. JOSEPH H. CHOATE, *Vice-Chairman*
HAMILTON W. MABIE, L.H.D., *Secretary*
GEORGE A. PLIMPTON, *Treasurer*

Mrs. A. A. ANDERSON	Mrs. HENRY F. OSBORN
Mrs. FRANCIS B. ARNOLD	Mrs. HENRY M. SANDERS
Miss HELEN DAWES BROWN	EDWARD W. SHELDON
Mrs. WILLIAM C. BROWNELL	Miss EMILY JAMES SMITH
SILAS B. BROWNELL, LL.D.	GEORGE W. SMITH
FREDERIC R. COUDERT, LL.D.	Mrs. JAMES S. T. STRANAHAN
Mrs. SETH LOW	Mrs. JAMES TALCOTT
Mrs. ALFRED MEYER	FREDERICK S. WAIT

EVERETT P. WHEELER

BURSAR

Mrs. N. W. LIGGETT

HEAD OF FISKE HALL

Miss SUSAN GRIMES WALKER

DEAN'S SECRETARY

Miss ELIZABETH METCALF

In 1883 the Trustees of Columbia College offered degrees to women who should be able to pass the necessary examinations, without, however, providing instruction for them. The resulting system, called *The Collegiate Course for Women*, proved unsatisfactory to both parties. It was found necessary to provide instruction for women which should be identical with or equivalent to that provided by Columbia for men, and in 1889 Barnard College was organized with this purpose in view. Courses under eighty-one instructors in this University are open to students in Barnard College, in some cases at the College and in some at the University. The College duplicates for women as far as possible the curriculum of Columbia College and also registers for graduate work under the University faculties women who hold the bachelor's degree from institutions of

good standing. Examinations for admission to Barnard College, those given in course, and those for degrees, are conducted by Columbia University. During the first three undergraduate years separate instruction is given to women ; in the Senior year they are admitted to certain courses in the University. Graduate students attend many courses at Columbia University under the Faculties of Philosophy, Political Science, and Pure Science. Laboratory work under the Faculty of Pure Science is given at Barnard College.

By the terms of an agreement between Columbia University and Barnard College and Teachers College, students of Teachers College are permitted to attend courses in Barnard College.

This institution offers reciprocal privileges to students of Barnard College.

ADMISSION

Graduate Students

Women who hold the bachelor's degree from an American college or university of good standing, or an equivalent from a foreign institution of learning, are enrolled without examination under faculties of Columbia University and are required to register in Barnard College. Information in regard to graduate courses is published in separate pamphlets.

Undergraduate Students

For undergraduates, the requirements for admission are the same as those for admission to Columbia College (pp. 189, *ff.*). The examinations are held on the days and at the hours stated on page 189, at Barnard College.

Special Students

Students who do not wish to proceed to a degree are enrolled as special students ; they will, however, in the event of a change of plan, be credited with such of their courses as may coincide with the courses leading to a degree. All special students, with the exception specified below, must have passed the examination for matriculation.

Special Students in Music

Special students may be admitted to courses in music without examination in other subjects.

SCHOLARSHIPS AND PRIZES

Trustees' Competitive Scholarship

A scholarship of \$150 is awarded annually to the student who is examined at the College in June and passes the best complete entrance examination in all subjects. The papers of the students who pass free from conditions are examined by the Committee of the Faculty on Entrance Examinations, and the student whose papers as a whole entitle her to the first rank is awarded the scholarship.

Ella Weed Scholarship

A scholarship of \$150, founded in memory of Miss Ella Weed by past and present pupils of Miss Anne Brown's School, is awarded annually to a student who needs and deserves assistance.

Veltin School Scholarship

A scholarship of \$150, given by the alumni of Mlle. Veltin's School, is awarded annually on the same conditions as the Ella Weed Scholarship.

Brooklyn Scholarships

Twelve scholarships, founded by the Trustees of Columbia University in 1805, in recognition of the gift to Columbia University by President Low of a memorial building for the Library, are open for competition to candidates for admission to Barnard College who are residents of Brooklyn, N. Y., and have received their training in either the public or the private schools of that city. Three of these scholarships are awarded annually to the three qualified competitors who are examined in Barnard College in June and pass complete entrance examinations in all subjects. The papers of the competitors who pass without conditions will be examined by the Committee of the Columbia College Faculty on Entrance Examinations, and the three students whose papers as a whole are entitled to the highest rank will receive the scholarships.

Each scholarship entitles its holder to receive the sum of \$150 per annum during the college course; but if she fail to maintain a standing of at least grade C in all of the courses pursued by her, or if she commit any breach of good order, she shall forfeit the scholarship.

Should any recipient desire, she may, while still retaining the title "Brooklyn Scholar," transfer to any properly qualified candidate from Brooklyn the income from the scholarship; and such action on her part will not be made a matter of public record.

All persons intending to compete for these scholarships must submit satisfactory certificates of character and proficiency from the schools which they have last attended, and must state in writing that it is their intention to spend at least one year at Barnard College.

Mrs. Donald McLean Scholarship

A scholarship of \$150, founded by the New York Chapter of the Daughters of the American Revolution, is awarded to a student who needs and deserves it, and who agrees to pursue the study of history (chiefly that of the United States) continuously throughout her course.

Curtis Graduate Scholarships

Four scholarships of \$150 per annum, founded in the same manner as the preceding, will be awarded annually to the four most satisfactory graduate students. Applications should be filed before the 1st of April with the Dean of Barnard College. Blanks for this purpose may be obtained on application to the Dean's Secretary.

Fiske Graduate Scholarship

A scholarship of \$250, founded by Mrs. Josiah M. Fiske, will be awarded annually to the most satisfactory graduate student in Political Science. Applications should be filed before April 1st with the Dean of Barnard College. Blanks for the purpose may be obtained on application to the Dean's Secretary.

Herrman Botanical Prize

A prize of \$50, founded by Mrs. Esther Herrman, is awarded annually for excellence in botany.

Kohn Mathematical Prize

A prize of \$50, founded by Mrs. S. H. Kohn, is awarded annually to a Senior for excellence in mathematics. Competitors for this prize must have pursued mathematics continuously during their college course.

Chemistry Prize

A prize of \$25 is awarded annually for excellence in Sophomore chemistry.

Bunner Medal

By the terms of its establishment, the H. C. Bunner Gold Medal (page 32) is open for competition to students in Barnard College.

Hublitzell Medal

The Lavinia Carleton Hublitzell Memorial Medal, of the value of \$100, founded by Miss Lavinia Dempsey, is awarded annually to the member of the graduating class who presents the best essay on a topic in American history.

The College is now established in its new buildings, on Morningside Heights, with enlarged laboratories of physics, chemistry, botany, and zoölogy. Students in Barnard College have the use of the University Library. Applications for information should be addressed to *The Dean's Secretary, Barnard College, New York City.*

REGISTER OF STUDENTS

GRADUATE DEPARTMENT

- * Andrews, Grace.....New York
 Wellesley College, B.S.
Mathematics, Mechanics, Physics.
- * Baldwin, Agnes.....New York
 Columbia University, A.B.
Greek, Latin, Archæology.
- † Bates, Abby Barstow.....New York
 Boston University, A.B., A.M.
History.
- * Beckwith, Frances AgnesNew York
 Vassar College, A.B.
Sociology and Statistics.
Economics and Finance.
- † Berg, Clara de Lissa.....New York
 Columbia University, A.B.
Anthropology, History.
- * Bradbury, Ellen.....New York
 Smith College, A.B.
Education, Literature, Rhetoric.
- * Brown, Marianna Catherine.....New York
 Vassar College, A.B.
Education, Church History.
Psychology.
- † Brownell, Eleanor Olivia.....New York
 Bryn Mawr College, A.B.
English.
- * Bryson, Ella FitzGerald.....New York
 Columbia University, A.B.
Greek, Latin.
- † Bunting, MarthaPhiladelphia, Pa.
 Swarthmore College, L.B.
 Bryn Mawr College, Ph.D.
Education, Zoölogy.
- * Burt, Clara Maria.....Plainfield, N. J.
 Wellesley College, B.S.
Physics.

* Also a candidate for a degree in the University.

† Also a special student in the University.

- * Clews, Elsie Worthington.....New York
Columbia University, A.B., A.M.
Education, Sociology, Philosophy.
- * Coddington, Emily Matilda.....New York
London University, A.B.
Columbia University, A.M.
Mathematics, Mechanics.
- † Cody, Lydia Sarah.....Cleveland, Ohio
Boston University, A.B.
Anthropology, Psychology.
- * Colgate, Florence.....New York
Columbia University, A.B.
History, Economics.
- * Collin, Grace Lathrop.....Brooklyn
Smith College, B.L.
Literature, English.
- * Comstock, Ada Louise.....Morehead, Minn.
Smith College, B.L.
Education, Rhetoric, Literature.
- † Cram, Helen Lillie.....New York
University of Vermont, A.B.
Education.
- † Davis, Helen Gertrude.....Montclair, N. J.
Vassar College, A.B.
Education.
- † Davis, Josie Anna.....New York
Boston University, A.B.
Latin.
- * Dow, Caroline Belle.....Buffalo, N. Y.
Vassar College, A.B.
Music.
- * Dunn, Louise Brisbin.....New York
Columbia University, A.B.
Chemistry, Zoology.
- * Farwell, Julia Hutchins.....Wells River, Vt.
Columbia University, A.B.
History, Philosophy.
- * Foote, Susan Emily.....Port Henry, N. Y.
Smith College, B.L.
Sociology, Education.
- * Furness, Caroline Ellen.....Poughkeepsie, N. Y.
Vassar College, A.B.
Astronomy, Mechanics.
Physics, Mathematics.
- * Fyfe-Andrews, Eleanor Anne.....Sheffield, Mass.
University of Pennsylvania, A.M.
Germanic Language and Literature,
Germanic Philology, Romance Philology.

* Also a candidate for a degree in the University.

† Also a special student in the University.

- * Gruening, Rose Bertha.....New York
 Vassar College, A.B.
Music, French, Physics.
- * Hammerslough, Carrie.....New York
 Columbia University, A.B., A.M.
Mathematics, Mechanics, Italian.
- † Hill, Mabel Wood.....New York
 Smith College, B.L.
Music.
- * Hirst, Gertrude Mary.....Whitby, Eng.
 Cambridge University, England, A.B. equivalent certificate.
Greek.
- * Hughan, Jessie Wallace.....Brooklyn
 Columbia University, A.B.
Economics, Sociology, Literature.
- * Hulbert, Edith Josephine.....New York
 Vassar College, A.B.
 Columbia University, A.M.
Sociology, Economics, Philosophy.
- * Hurd, Mabel.....Syracuse, N. Y.
 Smith College, B.L.
Sociology, Economics.
- † Jackson, Florence.....Englewood, N. J.
 Smith College, B.S.
Chemistry.
- * Kendall, Elizabeth Kimball.....Boston, Mass.
 Oxford University, England, A.B. equivalent certificate.
History, Sociology.
- * Keys, Alice Maplesden.....New York
 Columbia University, A.B., A.M.
Economics.
- * Kingsbury, Mary Melinda.....Chestnut Hill, Mass.
 Boston University, A.B.
Sociology, Economics.
- * Logan, Lily.....Howardsville, Va.
 Tulane University, A.B.
Chemistry, Physics, Literature.
- * Mitchell, Caroline Tilden.....St. Cloud, Minn.
 Smith College, B.L.
History, Education.
- * Myers, Susan Isabella.....New York
 Columbia University, A.B.
Greek, Latin, Literature.

* Also a candidate for a degree in the University.

† Also a special student in the University.

- * Nammack, Elizabeth.....New York
Columbia University, A.B., A.M.
Latin, Greek, Botany.
- * Olmstead, Susan Hawley.....New York
University of Minnesota, B.L.
Education, English, Sociology.
- * Perkins, Alice Jane Gray.....Schenectady, N. Y.
Columbia University, A.B.
Latin, Greek, Archaeology.
- † Perkins, Anna Louise.....New York
Vassar College, A.B.
Music.
- * Perkins, Gertrude Emily.....Canton, N. Y.
St. Lawrence University, A.B.
Literature, Greek, History.
- † Platt, Sara Fairchild.....Englewood, N. J.
Vassar College, A.B.
Sociology.
- † Porter, Ruth Wadsworth.....Chicago, Ill.
Bryn Mawr College, A.B.
Economics.
- * Pyle, Ellen.....London Grove, Pa.
Swarthmore College, A.B.
Latin, Greek, Literature.
- * Read, Elizabeth Fisher.....Brooklyn
Smith College, B.L.
Germanics, Literature.
- † Shaw, Louise.....Hackensack, N. J.
Columbia University, A.B.
Sociology.
- † Slater, Ora Winona Louise.....Montclair, N. J.
Wellesley College, A.B.
Mechanics.
- * Stettheimer, Ettie.....New York
Columbia University, A.B., A.M.
Psychology, Literature.
Anthropology.
- * Stratford, Aline Croquet.....Brooklyn
Columbia University, A.B.
Literature, English, French.
- † Swenson, Celeste Castalia.....Flushing, N. Y.
Columbia University, A.B.
Education.

* Also a candidate for a degree in the University.

† Also a special student in the University.

- † Torrance, Flora Chapman.....New York
Cornell University, Ph.B., Ph.M.
History.
- * Warren, Ruth Annette.....New York
Smith College, A.B.
Latin, Greek, Archaeology.
- * Watterson, Ada.....New York
Columbia University, A.B.
Botany, Zoölogy, Chemistry.
- * Wilcox, Maude.....New Rochelle, N. Y.
Columbia University, A.B., A.M.
Economics.
- * Williams, Elizabeth Sprague.Buffalo, N. Y.
Smith College, B.S.
Columbia University, A.M.
Economics.
- * Williams, Grace SarahGalesburg, Ill.
Knox College, A.B.
French, Italian, History.
- * Winfield, Harriet.....Hamburg, N. J.
Wellesley College, A.B.
Columbia University, A.M.
Chemistry, Mineralogy, Mathematics.
- * Wolff, GertrudeNew York
Columbia University, A.B.
English.
- * Wood, Alice Ida.....New York
Wellesley College, B.S.
English.
- * Wood, Elizabeth Corrinne.....Pittsburg, Pa.
Allegheny College, A.B.
History.
- * Woodhull, Marianna.....New York
Smith College, A.B.
Literature.

SENIOR CLASS

- Bloomingdale, Rosalie.....New York
- Brackett, Mary Morrell.....New York
- Carman, Cerise Emily Agnes.....River Edge, N. J.
- Demarest, Ida May.....Jersey City, N. J.
- Dickson, Agnes Lillian.....Jersey City, N. J.
- Drew, Georgie Mary.....West Orange, N. J.
- Duer, Alice.....New York
- Gildersleeve, VirginiaNew York

* Also a candidate for a degree in the University.

† Also a special student in the University.

Goodale, Grace Harriet.....	Potsdam, N. Y.
Hoffman, Adelaide Camilla.....	Brooklyn
Jacobi, Marjorie.....	New York
Kupfer, Elsie.....	New York
Leaycraft, Agnes Crawford.....	New York
Oakley, Helen Marion.....	Jersey City, N. J.
Ornstein, Martha.....	New York
Overton, Ruth Cecelia.....	Brooklyn
Pollard, Grace Isabelle.....	East Orange, N. J.
Reynaud, Aurelie Marie.....	Mount Vernon, N. Y.
Seligsburg, Ella Rosina.....	New York
Smith, Anna Mabel.....	Jersey City, N. J.
Stilwell, Alte.....	New York
Striker, Edith Parker.....	East Orange, N. J.
Waddington, Mary Elizabeth.....	New York
Wohlfarth, Amelia.....	New York

JUNIOR CLASS

Baldwin, Florence Theodora.....	New York
Barrick, Willina.....	Jersey City, N. J.
Cole, Helen.....	Yonkers, N. Y.
Crawford, Margaret.....	Jersey City, N. J.
Germann, Susan Matilda.....	Brooklyn
Goldsborough, Mary Loockerman.....	Easton, Md.
Keller, Eleanor.....	New York
Kingsbury, Stella Frances.....	New York
Kyte, Florence Leslie.....	Fanwood, N. J.
Levy, Martha Washington.....	Newark, N. J.
Lippincott, Florence.....	New York
Newborg, Hilda.....	New York
Newcomb, Virginia.....	Boston, Mass.
Oppenheimer, Florence.....	New York
Osborne, Evelyn.....	New York
Reiley, Ellinor Ten Broeck.....	New York
Rosenstein, Sarah Bertha.....	New York
Schwed, Cecile Heller.....	New York
Sill, Florence Miller.....	New York
Straus, Sara.....	New York
Van Home, Katherine.....	Jersey City, N. J.
Watkins, Julia Cooper.....	Montclair, N. J.
Woodhull, Mary Caldwell.....	Craigville, N. J.
Wurzburger, Julie.....	New York

SOPHOMORE CLASS

Beer, Alice.....	New York
Bergen, Elsie Gubner.....	Brooklyn

Berry, Edith.....	East Orange, N. J.
Bloodgood, Lisa Delavan.....	Brooklyn
Boetzkes, Otilie Gertrude.....	Bensonhurst, N. Y.
Buffington, Margaret.....	Millburn, N. J.
Cameron, Marie Elise Helen.....	Woodside, N. Y.
Catlin, Helen Elizabeth.....	Bloomfield, N. J.
Cutting, Harriet Elizabeth.....	Yonkers, N. Y.
Dederer, Pauline Hamilton.....	New York
Eaton, Mary Lavinia.....	Nyack, N. Y.
Elting, Mabel.....	New Paltz, N. Y.
Gillespy, Jeannette Bliss.....	New York
Hanks, Lenda Tracy.....	New York
Heroy, Madalene.....	New York
Hudson, Clara Elizabeth.....	Astoria, N. Y.
Isaacs, Isabel Estelle.....	New York
Jacobs, Lillie Friedlander.....	New York
Johnson, Adele Remsen.....	Brooklyn
Josephthal, Hilda Emily.....	New York
Kane, Helen Agnes.....	Brooklyn
Kraker, Rose Lois.....	Rochester, N. Y.
Loveman, Amy.....	New York
MacBride, Ruth Kirker.....	New York
McKim, Christina Louise.....	Yonkers, N. Y.
Marshall, Margaret Eva.....	Stamford, Conn.
Osborn, Bessie May.....	Yonkers, N. Y.
Pollak, Meta.....	Summit, N. J.
Richardson, Edith Cushing.....	Brooklyn
Roberts, Elizabeth Carpenter.....	Flushing, N. Y.
Sanville, Florence Lucas.....	New York
Schuyler, Sarah Edwards.....	Plainfield, N. J.
Studdiford, Jannetta Gordon.....	East Orange, N. J.
Townsend, Marian Goodall.....	New York
Wallach, Alina Frank.....	New York
Wendt, Cordelia.....	Larchmont, N. Y.
Whitney, Catherine Elizabeth.....	New York

FRESHMAN CLASS

Allen, Elizabeth.....	Brooklyn
Alsberg, Elsa.....	New York
Becker, Carolyn.....	Margaretville, N. Y.
Belcher, Frances Elinor.....	Mt. Vernon, N. Y.
Boote, Edith.....	Yonkers, N. Y.
Brown, Bertha.....	Flushing, N. Y.
Budd, Mary Hunt.....	Chester, N. J.
Campbell, Edna Maud.....	Scarsdale, N. Y.
Carll, Lydia Adele.....	Flushing, N. Y.
Chapin, Edna Cara.....	Mt. Vernon, N. Y.

Clark, Margaret Elizabeth.....	Amenia Union, N. Y.
Coddington, Elizabeth Cadmus.....	Passaic, N. J.
De Hart, Grace Lucille.....	Jersey City, N. J.
Donald, Rebecca Staunton.....	New York
Durant, Edith.....	New York
Dutcher, Eva Olive.....	Brooklyn
Earle, Ruth.....	Yonkers, N. Y.
Elliman, Margaret Grote.....	New York
Hall, Mary Dederick.....	Mt. Vernon, N. Y.
Hunt, Eleanor Harrison.....	West Orange, N. J.
Ingalls, Edith May.....	New Rochelle, N. Y.
Kellogg, Olive Catherine.....	Cortland, N. Y.
Kimball, Viola Louise.....	Greenwich, Conn.
McKenney, Annie Pickrell.....	Petersburg, Va.
Merrill, May.....	Minneapolis, Minn.
Moore, Martha Wickham.....	Passaic, N. J.
Neiswender, Ada Blanche Clouse.....	Brooklyn
Newman, Ethel Leone.....	Riverside, Conn.
Oppenheim, Flossy May.....	Albany, N. Y.
Peters, Grace Malvina.....	Brooklyn
Phelps, Eleanor.....	New York
Pollak, Wilma Vera.....	New York
Pratt, Harriett Louise.....	New Milford, Pa.
Rosenblatt, Bella.....	New York
Rosenstein, Alma.....	New York
Sait, Muriel.....	Toronto, Can.
Siebert, Jeanette Rowland.....	Brooklyn
Shaen, Mary Carolyn.....	Yonkers, N. Y.
Stoll, Mary Elizabeth.....	New York
Totten, Elsie Lloyd.....	New York
Van Cott, Eleanor.....	New York
Wehncke, Marie Louise.....	Stapleton, N. Y.
Wendell, May Gofrey.....	Bridgeport, Conn.
Winterburn, Una Adele.....	Edgewater, N. J.
Worth, Margaret Wright.....	Cresskill, N. J.

SPECIAL STUDENTS

Boskowitz, Irma Olga.....	New York
Bridgman, Annie Townsend.....	New York
Crane, Aurelia Blair.....	Scarsdale, N. Y.
Crockett, Eleanor Armstrong.....	Nashville, Tenn.
Einstein, Hannah B.....	New York
Elkus, Savilla.....	New York
Fielitz, Carrie.....	New York
Graecen, Eleanor Marguerite.....	New York
Guggenheim, Edyth.....	New York
Hyman, Gertrude.....	New York

Isaacs, Alice Maria.....	New York
Judson, Sarah Elizabeth.....	New York
Karger, Louise.....	Cleveland, O.
Keagy, Esther.....	Buffalo, N. Y.
Kunz, Eda Flora.....	Erie, Pa.
Long, Emelia Olivia.....	New York
McLaughlin, Mary Atkinson.....	Metuchen, N. J.
Meyer, Ruth.....	New York
Morrison, Olive Louise.....	Bryan, O.
Newcomb, Marian.....	Boston, Mass.
† Norrie, Margaret Lewis Morgan.....	New York
Price, Miriam Sutro.....	New York
Scott, Cora Arnot	New York
Squire, Aidine.....	Seattle, Washington
Straus, Minnie.....	New York
Treadwell, Amy.....	Albany, N. Y.
† Wise, Carrie.....	New York

SPECIAL STUDENTS IN MUSIC

Alexander, Stella Hadden.....	New York
Aller, Katherine Lewis.....	Mt. Vernon, N. Y.
Althaus, Lily.....	New York
Babcock, Isabel Starr.....	Nyack, N. Y.
Barrows, Mary Webster.....	New York
Chase, Mary Livingstone.....	Scarsdale, N. Y.
Clark, Keith.....	St. Paul, Minn.
Cromwell, May Rebecca.....	New York
Davis, Alice.....	New York
Diller, Mary Angela.....	Brooklyn
Gottschalk, Clara Aimee.....	New York
Griffing, Annie Van Winkle.....	New York
Haydon, Mattie Belle.....	Louisville, Ky.
Hendricks, Helen E.....	New York
Henry, Evelyn.....	Berkeley, Cal.
Holmes, Caroline Sweet.....	Montclair, N. J.
Holmquist, Karlina.....	New York
Kahnweiler, Bettina.....	New York
Lane, Cara.....	New York
Levy, Fanny Granberry.....	Mt. Vernon, N. Y.
Littig, Mary Langsdorff.....	New York
Loomis, Jeanet.....	Attica, N. Y.
Maben, Caroline.....	Saratoga, N. Y.
Matthew, Elizabeth Mary.....	St. John, N. B.
Mitchell, Nina.....	Flushing, N. Y.
Olmsted, Lily Remington.....	Buffalo, N. Y.

† Also a special student in the University.

Porter, Jeannette Steele.....	Covington, Ky.
Porter, Virginia May.....	Charlottesville, Va.
Reiman, Ida Edith.....	New York
Thompson, Berenice.....	Brooklyn
Underhill, Jean Williams.....	New York
Van Ingen, Helen... ..	Brooklyn
Weil, Helen.....	New York
Whitehead, Julia Halsey.....	New York
Wiggins, Emily Long.....	New York

SUMMARY

Graduate Students.....	65
Senior Class.....	24
Junior Class.....	24
Sophomore Class.....	37
Freshman Class.....	45
Special Students.....	27
Special Students in Music.....	35
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STUDENTS PRIMARILY REGISTERED IN BARNARD COLLEGE.....	257
STUDENTS FROM TEACHERS COLLEGE	10
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TOTAL.....	267

TEACHERS COLLEGE

TRUSTEES

SPENCER TRASK, *Chairman*

NEWBOLD MORRIS, *Secretary*

Miss GRACE H. DODGE, *Treasurer*

WILLIAM F. BRIDGE	V. EVERIT MACY
Mrs. PETER M. BRYSON	WILLIAM G. ROCKEFELLER
Mrs. JOSEPH H. CHOATE	FREDERICK F. THOMPSON
GEORGE W. VANDERBILT	B. TALBOT B. HYDE
Rev. DAVID H. GREER, D.D.	JOSEPH MILBANK
WILLIAM GREENOUGH	WILLIAM BARCLAY PARSONS
PETER B. OLNEY	WILLIAM M. SLOANE, Ph.D., L.H.D.

SETH LOW, LL.D.

Officers of Administration

SETH LOW, LL.D.,
President of the University

JAMES EARL RUSSELL, Ph.D.,
Dean

VIRGIL PRETTYMAN, A.M.,
Principal of the Horace Mann School

JOHN FRANCIS WOODHULL, A.B.,
Professor in Charge of Buildings and Grounds

WALTER H. NICHOLS, B.S.,
Secretary to the Dean

LUCETTA DANIELL,
Registrar

ELIZABETH G. BALDWIN,
Librarian

MARY C. BRUSH,
Assistant Registrar

GUSTAV VIEHL,
College Organist

CAROLINE E. CABOT, M.D.,
Examining Physician
JOHN PERRY SEWARD, M.D.,
Examining Physician

REPRESENTATIVES IN UNIVERSITY COUNCIL

JAMES EARL RUSSELL, Ph.D., *ex-officio*
FRANKLIN THOMAS BAKER, A.M., (*term expires 1899*).

The Faculty

SETH LOW, LL.D.

JAMES EARL RUSSELL, Ph.D., *Dean and Professor of the History of Education*
NICHOLAS MURRAY BUTLER, Ph.D., LL.D., *Professor of Philosophy and Education*
FRANK MORTON MCMURRY, Ph.D., *Professor of the Theory and Practice of Teaching*
JAMES MCKEEN CATTELL, Ph.D.....*Professor of Psychology*
JOHN FRANCIS WOODHULL, A.B.....*Professor of Physical Science*
FRANKLIN THOMAS BAKER, A.M.....*Professor of English Language and Literature*
EDWARD HOWARD CASTLE, A.M.....*Professor of History*
RICHARD ELWOOD DODGE, A.M.....*Professor of Geography*
HELEN KINNE.....*Professor of Domestic Science*
MARY DUNCAN RUNYAN.....*Professor of the Kindergarten*
ALFRED VANCE CHURCHILL, A.M.....*Professor of Art*
CHARLES RUSSELL RICHARDS.....*Professor of Manual Training*
VIRGIL PRETTYMAN, A.M.....*Principal of the Horace Mann School*
FREDERICK REMSEN HUTTON, Ph.D.....*Professor of Mechanical Engineering*

GENERAL STATEMENT

Teachers College, founded in 1888 and chartered by the Regents of the University of the State of New York on January 12, 1889, became, by an agreement dated March 22, 1898, a part of the educational system of Columbia University. The President of Columbia University is President, *ex-officio*, of Teachers College, and the university professors of philosophy and education and of psychology are members of the Faculty of Teachers College, which is, in turn, represented upon the University Council by the Dean and an elected representative of its Faculty.

Teachers College maintains its separate corporate organization, and its Board of Trustees continue to assume the entire financial responsibility for its maintenance.

Teachers College is the professional school of Columbia University for the study of education and the training of teachers. It takes academic rank with the Schools of Law, Medicine, and Applied Science. The purpose of Teachers College is to afford opportunity, both theoretical and practical, for the training of teachers of both sexes for elementary and secondary schools, of specialists in

various branches of school work, and of principals, supervisors, and superintendents of schools. It offers to students of university grade and to experienced teachers the most ample facilities for practical work, as well as for special study and research.

Graduates of an approved institution of learning, a college, engineering school, normal school, or the equivalent of one of these, who present satisfactory evidence of a high degree of professional ability, may become candidates for the higher diploma of Teachers College. The college diploma is conferred upon students who have successfully completed some one of the undergraduate courses offered, and a departmental diploma upon those who have fitted themselves for particular branches of school work. Certificates of work actually performed are granted to students who have pursued partial courses. The course of study for intending teachers in secondary schools is so arranged that undergraduate students of Columbia College and of Barnard College, and students from other colleges who are prepared to enter the senior class of either of these colleges, may, if they so desire, obtain the diploma of Teachers College at the time of receiving the degree of Bachelor of Arts. Certain courses in Teachers College, including all those in the department of Education, may be counted in partial fulfillment of the requirements for the degrees of Master of Arts and Doctor of Philosophy. Graduate students of Teachers College who conform to the general regulations of the University Council, may thus pursue at the same time courses leading to a diploma and a higher degree.

The Horace Mann School, fully equipped with kindergarten, elementary, and secondary classes, is maintained by Teachers College as a school of observation and practice. It offers unexcelled advantages for the investigation of educational problems and for the study of the practical work of teaching.

BUILDINGS AND EQUIPMENT

The buildings of Teachers College and of the Horace Mann School are situated on West 120th and 121st Streets, between Amsterdam Avenue and the Boulevard, directly opposite the northern boundary of the University grounds.

The Macy Manual Arts Building is thoroughly equipped for the departments of Manual Training and Art Education. All other departments of the College and of the Horace Mann School, including the Bryson Library of nearly 12,000 volumes, the chapel, and the gymnasium are located in the Milbank Memorial Building and in the Main Building.

College Hall, at the corner of Amsterdam Avenue and 117th Street, supplies dormitory accommodations for women students under the supervision of officers of Teachers College.

REGISTER OF STUDENTS

Candidates for the Higher Diploma of Teachers College or the Degrees of Master of Arts and Doctor of Philosophy from the University

- † Allen, Edith DeLancey.....Geneva, N. Y.
Teachers College, 1898.
Education.
- † Bardwell, Lizzie Gertrude.....Greenfield, Mass.
Antioch College, 1873-1876.
Education.
- * Beeman, Le Roy Mason.....Brattleboro, Vt.
Wesleyan University, B.A., 1895.
Education, Geography.
- † Bermingham, Florence.....New York
Normal College.
Education.
- Bevier, Katherine.....New York
Normal College Dip., 1876.
Education.
- * Breese, Burtis Burke.....Reece, Kan.
Kansas University, A.B., 1896.
Harvard University, A.B., 1897 ; A.M., 1898.
Education, Psychology.
- * Brower, George Griswold.....New York
Syracuse University, B.S., 1887.
Education, Psychology, Mathematics.
- * Chamberlain, William Isaac.....New Brunswick, N. J. Vellore, India
Rutgers College, B.A., 1882 ; M. A., 1886.
Education, Philosophy.
- † Chandor, Valentine Laura.....Plainfield, N. J.
Teachers College, 1898.
Education, Mathematics, History.
- Childs, Ada.....New York
Normal College, A.B., 1898.
Special.

* Also a candidate for a degree in the University.

† Also a special student in the University.

- * Clark, Adelbert Thomas Selden.....New York
Union University, A.B., C.E., A.M.
Education, English, History.
- * Deahl, Jasper Newton.....Grofton, W. Va.
Peabody Normal.
University of Nashville, A.B.
Education.
- * Dexter, Edwin Grant.....Greeley, Col.
Brown University, P. B., 1891; A.M., 1892.
Education, Psychology.
- * Galbreath, Louis Hutchinson.....Ashmore, Ill.
Cornell University, B. L., 1890.
Education, Philosophy.
- * Greene, Frederic Lowell.....Southampton, N. Y.
Mass. Agricultural College and
Boston University, B.S., 1894.
Education, Psychology, Manual Training.
- † Harris, Lizzie S.....New York
Normal College.
Education, Art.
- Hayes, Maud Ellen.....New York
Teachers College, 1892.
History.
- † Horton, Mary Snow.....East Orange, N. J.
Teachers College, 1896.
Education.
- * Hubbell, George Allen.....Yellow Springs, Ohio
Antioch College, B.S., 1890; A.M., 1891.
Education, Anthropology.
- Irons, Foster Heathcote.....Toledo, Ohio
Teachers College, 1897.
Manual Training.
- † Jones, Mary Philippa.....Florence, Ala.
Alabama State Normal, 1878.
Cook County Normal, 1889.
Education, Philosophy, Geography, Biology.
- Kirchwey, Clara Barbara.....New York
Albany Normal College.
Education, Philosophy, Geography, Biology.
- Knox, Thomas Harry.....New York
College of the City of New York, B.S.
Education.
- LaMonte, Sue Life.....Owego, N. Y.
Owego Free Academy.
Education, English, History.

* Also a candidate for a degree in the University.

† Also a special student in the University.

- † Luddington, Harriet Adelaide. New Haven, Conn.
 State Normal, Westfield, Mass., 1881.
 Cook County Normal, 1889.
Education, Anthropology, Geography.
- † Ludwig, Henry, Jr. New York
 College of the City of New York, B.S., 1889.
 New York University, M.A., 1891.
Education.
- McAlister, Anna Aikman. New Haven, Conn.
Education.
- McRae, Agnes. Rochester, N. Y.
 Brockport Normal, 1891.
Education, Geography, Biology.
- † Major, David R. Frankfort, Ind.
 Wabash College, B.S., 1890.
 Cornell University, Ph.D., 1896.
Education, Psychology.
- * Maxwell, Guy Everett. St. Paul, Minn.
 Hamlin University, A.B., 1893.
Education, Psychology.
- * Morgan, Edwin. East Stroudsburg, Penn.
 University of Chicago, A.B., 1894.
Education.
- * Reeder, Rudolph Rex. Chicopee Falls, Mass.
 Illinois State Normal University, 1893.
Education, Geography.
- * Russell, Arthur Benedict. South Norwalk, Conn.
 Yale University, A.B.
Education, Latin.
- † Shaffer, Walter White. Dysart, Ia.
 State University of Iowa.
Education, History.
- † Simon, Evelina Carroll. Baltimore, Md.
 Woman's College of Baltimore, A.B., 1898.
Education, Physics.
- * Spencer, Frank Clarence. Monte Vista, Col.
 University of Colorado, C.E., 1890; B.S., 1894.
 Colorado State Normal, Ph.B., 1891.
Education, Anthropology.
- † Young, Mabel Minerva. Worcester, Mass.
 Wellesley College, A.B., 1898.
Education, Psychology, Mathematics.

* Also a candidate for a degree in the University.

† Also a special student in the University.

Candidates for the General Diploma

Following each student's name are indicated in brackets the courses pursued, abbreviated as follows :

(El.).....Elementary Teaching	(B.).....Biology
(Sec.).....Secondary Teaching	(M.).....Mathematics
(Kg.).....Kindergarten	(S.).....Physical Science
(M.T.).....Manual Training	(E.).....English
(A.).....Art	(G.).....Geography
(D.S.).....Domestic Science	(P.).....Psychology
(D.A.).....Domestic Art	

FOURTH-YEAR CLASS

- † Auerbach, Matilda (El., and M. & S. in Sec. Schs.)..... New York
† Bawden, Emily (El., and B. in Sec. Schs.)..... New York
† Bennett, Agnes Leonard (El.)..... Hackensack, N. J.
Bertholf, Ella Maria (M.T.)..... New York
† Beyer, Emil (El.), B.S., *College of the City of New York*..... New York
† Bristol, Winifred May (Sec.), B.S., *Cornell*..... Pictou, Ontario
† Cleves, Marion Elizabeth (Kg.)..... Binghamton, N. Y.
† Cooper, Isabel Mitchell (Upper El. and Sec.)..... Troy, N. Y.
† Curtin, Margaret Higgins (El.)..... Hoboken, N. J.
† Finnegan, Alyce Josephine (El.)..... South Orange, N. J.
Gausmann, Anna Bogert (A.)..... Leonia, N. J.
† Genung, Anna Meeker (Sec.), A.B., *Wellesley*, 1896..... Asbury Park, N. J.
† Gurnee, Blandina Hasbrouck (Sec.), A.B., *Cornell*..... Brooklyn
* Halliday, Edgar (Sec.), B.A., *Princeton*..... Brooklyn
Hart, Fanny (Sec., Lat., and E.), A.B., *Vassar*..... New York
† Hobach, Katharine (Sec.), A.B., *Woman's College of Baltimore*,
Queens Park, Pa.
† House, Florence Elizabeth (Sec.)..... Salonica, Turkey
Kelly, Myra (M.T.)..... New York
† McRae, Frances Elbertine (S.), Dip., *Lockport Normal*..... Lockport, N. Y.
Mitchell, Edith Roberts (Kg.)..... Asbury Park, N. J.
O'Flaherty, Hannah Pembroke (Sec.), B.A., *Wesleyan*, 1898. Hartford, Conn.
Owen, Grace (Kg.)..... Greenwich, Eng.
* Phillips, Sara Jay (Sec.), A.B., *Vassar*..... New York
Schmelz, Virgilia (El.)..... New York
† Shafer, Lillian Olcott (Kg.)..... Montclair, N. J.
† Smith, Margaret Helen (Sec.), A.B., *Mt. Holyoke*..... East Orange, N. J.
† Snyder, Eudora Delight (El.), Dip., and B. Ped., *Albany Normal*,
Rensselaerville, N. Y.
† Stebbins, Jessie Waldo (Sec.), A.B., *Mt. Holyoke*..... Fishkill, N. Y.
† Tiebout, Cornelius Henry, Jr. (Sec.), A.B., *Brooklyn Polytechnic ; A.M.,*
Columbia, 1898, Brooklyn
† Wells, Phillip Bartlett (Sec.), A.B., *Harvard*, 1895..... Plainfield, N. J.

* Also a candidate for a degree in the University.

† Also a special student in the University.

THIRD-YEAR CLASS

Case, Mary Burling (El.).....	Southold, N. Y.
Clowes, Helen Coe (Kg.).....	Hempstead, N. Y.
Dilworth, Margie Benson (M.T.).....	Salem, N. J.
Folger, Harriette (D.S.).....	Mantua, O.
Garrabrant, Elizabeth (A.).....	Newark, N. J.
† Hildreth, Helen Rebecca (El.), Dip., <i>Winona Normal</i>	Lockport, N. Y.
House, Grace Bigelow (M.T. and A.).....	Salonica, Turkey
Hubbard, Mildred (El.).....	Winchester, Ill.
Hughes, May Evelyn (Kg.), Ph.B., <i>Alfred University</i>	New York
Jones, Lulie (El.), Dip., <i>Alabama State Normal</i>	Florence, Ala.
Lyon, Elvira Nathan (Kg.).....	New York
Marot, Mary Stuart (El.).....	Philadelphia, Pa.
Orr, Frederick Joseph (A.), B.E., <i>Univ. of Georgia</i>	Athens, Ga.
Sanders, Florence Randolph (M.T. and A.).....	New York
Sherer, Genevieve (Kg.).....	Hempstead, N. Y.
Waters, Annie Stout (El.), Dip., <i>Oswego Normal</i>	Peekskill, N. Y.
Wheeler, Marie Louise (Kg.).....	Montclair, N. J.

SECOND-YEAR CLASS

Atwood, Theodora (El.).....	Geneva, N. Y.
Baer, Dena (D.S.).....	New York
Bailey, Marian Elizabeth (M.T.).....	Lansingburgh, N. Y.
Clark, Ada Ranney (El.).....	Cresskill, N. J.
Cole, Blanche Lillian (El.).....	Inwood, N. Y.
Felder, Louise (El.).....	New York
Harrell, Fanny (El.).....	Cumming, Ga.
Howard, Marjorie Louise (Kg.).....	Buffalo, N. Y.
Jones, Frances Fahnestock (El.).....	Bethlehem, Pa.
Linville, Lucy Anna (M.T.).....	Swarthmore, Pa.
Palmer, Florence Lila (Kg.).....	Tenafly, N. J.
Parsons, Belle (Kg.).....	Washington, D. C.
Schmelz, Irma (D.S.).....	New York
Shepherd, Frances Almira (El.).....	Denver, Col.
Staber, Maud Johanna (Sec.).....	Brooklyn
Staley, Jessie Edith (El.).....	Lansingburgh, N. Y.
Tattershall, Fanny (El.).....	White Haven, Pa.
Worth, Addie Josephine (A.).....	Geneva, N. Y.

FIRST-YEAR CLASS

Berwald, Elizabeth Sophie (El.).....	Bradford, Penn.
Blake, Marion (El.).....	Jersey City, N. J.
Comegys, Glennie Dexter (A.).....	Asbury Park, N. J.
Corson, Grace Edith (El.).....	Detroit, Mich.
Coursen, Claire Fairchild (El.).....	Newton, N. J.
Dows, Linda (El.).....	New York

† Also a special student in the University.

Dulon, Mabel Richards (El.)	New York
Hess, May Irene (El.)	New York
Kendrick, Ada Beatrice (El.)	New York
Kendrick, Elsie Maud (El.)	New York
Lloyd, William Rensselaer (El.)	New York
McCready, Margaret Alice (El.)	Plainfield, N. J.
Pierson, Elizabeth Bradford (El.)	Orange, N. J.
Rand, Laura Bradfield (Kg.)	Amherst, Mass.
Seward, Christina (El.)	Orange, N. J.
Smith, Ida May (Kg.)	Newark, N. J.
Taylor, Marguerite (A.)	New York
Tener, Elizabeth (Kg.)	New York
Walker, Jennie (El.)	Avondale, N. J.
Wettlin, Emma Louise (El.)	Newark, N. J.
White, Jessie Campbell (El.)	Bradford, Penn.
Yudelson, Sophie (El.)	New York

Candidates for Departmental Diploma

SECOND-YEAR CLASS

Barnum, Edith Cornelia (Kg.)	Danbury, Conn.
Beebe, Dee (A.)	Taunton, Mass.
Blake, Claire Adams (A.)	New York
Ford, Jennie Teresa (D.S.)	Brooklyn
Langlas, Carl Frederick (M.T.), B.M.E., <i>Iowa State College</i>	Waterloo, Ia.
Philbrick, Annette Elizabeth (D.S.), B.S., <i>Univ. of Nebraska</i>	Lincoln, Neb.
Pollock, Mrs. Anna Connolly (D.S.)	Washington, D. C.
Titlow, Harriet Woodfin (A.)	Hampton, Va.
White, Anna Margaret (D.S.)	Woodstock, Ont.

FIRST-YEAR CLASS

Ansley, Frances Lou (A.)	Buffalo, N. Y.
Barlow, Henry Saunders (M.T.)	New York
Boone, Cheshire Lowton (A.)	Ypsilanti, Mich.
Bragg, Alice Isabel (D.S.)	Cambridge, Mass.
Brundage, Howard Drake (M.T.)	Newburgh, N. Y.
Campbell, Gracey Lester (M.T.)	Westfield, Mass.
Cooper, Bessie Ada (M.T.)	Pittsfield, Mass.
Davis, Henry Amon (M.T.)	Ishpeming, Mich.
Drennan, Eunice (A.)	Decatur, Ill.
Forrest, Mrs. Mary Lacy Dickinson (D.S.)	Rochester, N. Y.
Hall, Fannie Lee (D.S.)	New York
Hammond, Anna Marie (M.T.)	Geneva, N. Y.
Himes, Olive Rena (A.)	Albany, N. Y.
Holmes, Adrienne (A.)	Paterson, N. J.
Hopkins, Alice (D.A.)	Buffalo, N. Y.
Jones, Grace Elizabeth (D.S.)	Newark, N. J.

Kachline, Fannie Elizabeth (D.A.)	Nazareth, Penn.
Lamb, Ella Wells (A.)	Port Henry, N. Y.
Meagher, Mary Melania (A.), Dip., <i>Virginia Normal College</i>	Richmond, Va.
Meeks, Anna Morrell (A.)	New York
Mitchell, Maude Josephine (A.), Dip., <i>Buffalo State Normal</i> ,	
	Wabauunsee, Kan.
Niles, Martha Ellen (Kg.)	Flushing, Mich.
Niles, May Irene (A.)	Flushing, Mich.
Nordell, Elfreda Hildegard (Kg.)	Stamford, Conn.
Richards, Samuel James (M.T.), Dip., <i>Clafin Univ.</i>	Rantowles, S. C.
Simmons, Annie Pendlebury (D.A.)	Yonkers, N. Y.
Thompson, Mary Forbes (Kg.)	Plainfield, N. J.
Thorburn-Artz, Mrs. Lucretia Nash (A.)	New York
Very, Edith (A.)	Bradford, Conn.
Whittemore, Laura Brainard (D.S.)	East Orange, N. J.
Young, Elizabeth (A.)	Milton, N. Y.

Students not Candidates for a Diploma

SPECIAL STUDENTS

Barris, Bessie Lovering (M.T.)	Davenport, Ia.
Bell, Ruth (G.)	Brooklyn
Beller, Wilhelmina Catharine (Ed. and A.), Dip., <i>Normal College</i>	New York
Berry, Laura (B.)	Peterboro, N. Y.
Blake, Mrs. Marian Eva (E.)	Los Angeles, Cal.
Bradstreet, Laura (D.S.)	Gardiner, Me.
Brush, Jane Wheeler (Kg.)	Geneva, N. Y.
Burns, Sophie Fanny (H. and E.)	Bath, N. Y.
Calhoun, Florence Davis (E.)	Elizabeth, N. J.
Campbell, Josephine (D.S.)	New York
Chase, Eleanor Frances (D.A.)	New York
Collins, Anna Eaton (G.)	Brooklyn
Colman, Charlotte Gorham (A.)	New York
Conklin, Gertrude Hosen (A.)	New Rochelle, N. Y.
Cooper, Caroline Ellery (S.)	Pittsfield, Mass.
Crooks, Nellie (D.A.)	Madison, N. J.
Curtis, Mrs. Anna Frances (A.)	New York
Daniell, Elizabeth Dwight (A.)	Boston, Mass.
Daniell, Mary Eldred (D.A.)	Boston, Mass.
Eldridge, Mrs. Bessie Barret (A.)	New York
Elleau, Augustine Louise (D.A.)	Newark, N. J.
Emerson, Julia Titus (B.)	New York
Frost, Laura G. (Ed., H., and E.)	Meriden, Conn.
Gibson, Lilian Ruth (A.)	New York
Goodban, Beatrice Rose (D.A.)	New York
Gould, Elizabeth (A.)	New York
Hallock, Charles Wood Sitzter (S. and Ed.), Dip., <i>Albany Normal</i>	New York

Hallowell, Minnie Helen (Kg. and B.)	East Orange, N. J.
Halstead, Mary L. (El.)	New York
Henderson, Marion Livingston (El.)	Plainfield, N. J.
Herrick, Ella Kendrick (A.)	Burlington, Vt.
Hill, Sarah (D.A.)	Rutherford, N. J.
Husted, Ida Louise (Kg.)	Highland Falls, N. Y.
Jayne, Addie (S. and E.)	South Orange, N. J.
Katté, Adelaide I. (P., E., and H.)	New York
Kruger, Elizabeth Regina (Kg.)	New York
Lyman, Anna Isabel (Kg.)	New York
McKinstry, Annie Bowles (A.)	New York
Mitchell, Isa Mariam (A.)	New York
Morris, Mildred (D.S.)	St. Louis, Mo.
Nesbitt, Emma Taylor (D.S.)	Tuskegee, Ala.
Newman, Constance B. (P.)	New York
Palmer, Luella (H.)	New York
Patrick, Virginia (E. and H.)	Kinston, N. Ca.
Proctor, Julia (Kg.)	New York
Richards, Arthur Wescate (M. T.)	New York
Salant, Aaron Bennett (H.), B.S., <i>College of the City of New York</i>	New York
Savage, John Reuben (El.), A.B., <i>Talladega College</i>	Snow Hill, Ala.
Shaffer, Edith E. (D.A.)	Newburgh, N. Y.
Stix, Florence Deitsch (A.)	New York
Sullivan, Bessie (A.), B.A., <i>Weillesley</i>	Brooklyn
Swick, Katharine De Forest (Phil., Math., E.), A.B., <i>Elmira</i>	Somerville, N. J.
Tracy, Helen Dawson (Kg.)	Highland Falls, N. Y.
Vail, Maud Estelle (A.)	Hyde Park, N. Y.
Watson, Mary Urie (D.A.)	Ayr, Ont.
White, Mrs. Jessie (D.S. and S.)	Bradford, Pa.
Williamson, Josephine Lawrence (A.)	Dobbs Ferry, N. Y.
Wingfield, Henrietta (Sec.)	Montclair, N. J.
Withers, Frances Higbee (Kg.)	Yonkers, N. Y.
Yawger, Louise Catherine (E. and M.)	New York

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THE HORACE MANN SCHOOL

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16. Municipal Government. By Dorman B. Eaton, LL.D., of New York. (In press.)

COLUMBIA UNIVERSITY QUARTERLY

The University Quarterly is published by the Columbia University Press, with the approval of the Trustees of the University. It appears regularly on the first of March, June, September, and December of each year. It is edited by a committee composed of a representative from each of the Faculties of the University.

The purpose of the Quarterly is to inform the alumni, officers, and friends of the University of its contemporary history and progress. Each number of the Quarterly contains articles on topics that concern the University as a whole, and also detailed information regarding a selected group of departments or schools. The Quarterly is sent free of charge to all members of the Alumni Association of Columbia College, and to others at a subscription price of \$1 per annum. Communications relating to the University Quarterly should be addressed to Professor G. R. Carpenter, Chairman of the Editorial Board of the University Quarterly, Columbia University.

SERIAL STUDIES AND CONTRIBUTIONS ISSUED FROM THE UNIVERSITY

1. Biological Contributions from Columbia University: Zoölogy. (Published by the Editors. Various prices.)
2. [Columbia University Contributions to Philosophy, Psychology, and Education. (Published by The Macmillan Co., New York. Various prices.)
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1. Bulletin of the American Mathematical Society. (Published by The Macmillan Co. \$5 per annum.)
2. Bulletin of the Torrey Botanical Club. (Published by the Torrey Botanical Club. \$2 per annum.)

3. Educational Review. (New York : Henry Holt & Co. \$3 per annum.)
4. Political Science Quarterly. (Boston and New York : Ginn & Co. \$3 per annum.)
5. School of Mines Quarterly. (New York : Published by the Editors. \$2 per annum.)

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6. American Historical Review. (New York : The Macmillan Co. \$3 per annum.)
7. American Journal of Archaeology. (Published by The Macmillan Co. \$5 per annum.)
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Jessie Wallace Hugban	Anna Irene Von Sholly
Louise Elizabeth Lacey	Ada Watterson
Ella Roselle Lathrop	Ida Eloise Wells
Anna E. H. Meyer	Elizabeth Heywood Wyman
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Bachelor of Laws

Alexander Spear Andrews, A.B.	Frederic Wellington Forsythe, B.L.
Wilbur Laing Ball, A.B.	George Henry Dunton Foster, A.B.
Anson McCook Beard, A.B.	Frederic Nye Gilbert
Clinton Edward Bell, A.B.	Herbert Goldmark, A.B.
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Michael Doran, Jr., A.B.	Herman Frederick Krafft, A.B.
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Henry William Egner, Jr., A.B.	Charles Shaw Leonard, B.S.
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Benjamin Franklin Einbigger	Frederick Montgomery Livingston,
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Richard Aston Elliott	Arthur Henry Longfellow, A.B.
Elmore Franklin Elmore, A.B.	Thomas Vincent Loughran, A.B.
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John C. Rowe, A.B.	Reginald Effingham Wigham
Leo Schafran, B.S.	Arthur Kyle Wing

Jeremiah Wood

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Doctor of Medicine

John Aquaro	William Petry Earl
Thomas Shaw Arbuthnot, A.B.	Francis Cruger Edgerton, B.S.
Joseph Walter Babcock	Eugene Harold Eising, B.S.
Samuel Barshell	Charles Francis Fitzgerald, A.B.
Maxwell Benjamin	Joseph Norman Fogarty
John Stanton Blackmar	Benjamin Butler Frankle
James Eddy Blake, B.S.	Charles Moore Franklin, A.B.
James Francis Briody	Andrew Suydam Fritts
Edward Manning Brown, Ph.B.	Arthur Henry Gardner
Charles Frederick Buckley, A.B.	Henry Goodfriend
Maynard Gooding Burgess	Malcolm Goodridge, A.B.
Archibald Henry Busby	Herman Rudolph Alexander Graeser,
William Caldwell Calhoun	Ph.G.
Clarence Wellington Campbell	Nathan Williams Green, A.B.
Spencer Carleton, A.B.	Leopold Frederick William Haas,
James Bayard Clark	B.S.
Arthur Vernon Clarke	Henry Clinton Hatton
Henry Elisha Clarke	Ruben Johnson Held
Martin Cohen	William Post Herrick, A.M.
Lewis Gregory Cole	Harold Edmonds Hewlett, Ph.B.
John James Collins, A.B.	Roy Seymour Hinsdale, A.B.
John Hamilton Potter Conover, A.B.	Charles James Howard
Herbert Sutherland Cooley	Ernest Valentine Hubbard, A.M.
Horace Cortelyou Cory	Charles Frederick Hunt
John James Cotter	Charles William Ivie, A.M.
Rowland Cox, Jr.	Elias Simeon Jackson
Hughes Dayton, Ph.B.	Henry Harrington Janeway, A.B.
Nicholas Dobkin	Ernest Potter Jenks, A.B.
Franklin Abbott Dorman, A.B.	Daniel Herbert Johnson
Isaac Linton Doughty, Jr.	Edward West Johnson
John Douglas, B.S.	William Cameron Johnston
Joseph Osterman Dyer, Ph.B., LL.B.	Kenneth Evernghim Kellogg

- James Henry Kenyon, B.S.
 Carl Richard Keppler
 Eugene George Kessler, Ph.G.
 Walter Leo Kline, A.B.
 Walter Carl Klotz
 Samuel Joseph Kopetzky
 Henry Kreuder, Ph.G.
 Christian Christoph Andreas Lange,
 B.S.
 Daniel Wunderlich Layman, B.S.
 Emanuel David Lederman
 Burton James Lee, Ph.B.
 Harry Mower Lee
 Henry Thomas Lee, Jr.
 John Leshure
 George Washington Lindheim
 John Othello Logan
 William Henry Long, Jr.
 Lionel Hartsfield Love
 Joseph Tompkins Low, Jr., B.S.
 Palmer Heath Lyon
 Henry Alexander MacGruer
 Walter Fullarton Macklin
 Edward O'Reilly Maguire
 Edward John McCarthy
 Harlow Comstock McLeod
 John English McWhorter
 Howard Valentine Merrell
 Leo Bernard Meyer, A.B.
 Alfred Michaelis, A.B.
 Albert Hersey Miller, A.B.
 Guy Bryan Miller, A.B.
 William Elphinstone Keith Mitten-
 dorf
 Browne Morgan
 Henry Perkins Moseley, A.B.
 Emil Alfred Müller
 Henry Nolte
 John Hilbert Oberle
 Joseph Henry O'Connell, A.B.
 Victor Cox Pedersen, A.M.
 Henry Hubbard Pelton, A.M.
 Judson Philbrook Pendleton
- Edgar Burton Probasco
 Norman Hayes Probasco
 Immanuel Pyle
 Dudley De Vore Roberts
 Joseph Robinson, Jr.
 Augustine Ward Roff
 Edward Aaron Rosenberg
 Henry Clay Ruhl, A.B.
 Emil Albin Rundquist, B.S.
 Stanley Owen Sabel
 Philip Schieffelin Sabine, A.B.
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 Ralph Tousey, A.B.
 Leslie Allin Turner
 Percy Rivington Turnure, A.B.
 Philip Schuyler Van Patten
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 Charlton Wallace, A.B.
 Ernest Coniston Waterhouse, A.B.
 Justin Miner Waugh, Jr., Ph.B.
 Walter Wettengel
 David Everett Wheeler, A.B.
 Charles Mallory Williams, A.B.,
 Ph.B.
 Abraham Leo Wolbarst
 William Cavan Woolsey
 John Henry Wurthman, Ph.G.
 Roy Demas Young, Ph.D., B.S.
 William Bellamy Young

Engineer of Mines

Alfred Chester Beatty	Irving Smith Lydecker
George Sylvester Brackett	Otto Frederick Pattberg
Alexander James Campbell	Juan Pablo Ros
Louis Floro Chibas	Gustavus Sessinghaus
Richard M. Geppert	William Allen Smith, Jr.
Rowland Francis Hill, Jr.	Edward Barney Sturgis
Gordon Lines Hutchins	William Shephard Thomas, C.E.
Henry Krumb	Harold Abbot Titcomb, A.B.
James Ellwood Jones	William Tudor, Jr., A.B.
	William Watson

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Civil Engineer

George Lewis Bennett	Francis Mason, A.B.
Herbert Doty Brown, A.B.	Isaac Menline
Garwood Ferguson	Aaron Israel Raisman
Joseph Goodman	Max Raymond
George Bain Gunn	William Ropes
Burdette Kipp	George Crosby Saunders
Joseph Albert Augustin Le Prince	John Schimmel, Jr., Mech.Eng.
Clarence MacKenzie Lewis	James Lloyd Tatlock
George Latimore Lucas	Ramiro Trapote
Henry Bennett Machen	Watson Vredenburg, Jr.

Hans Hermann Wolff

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Electrical Engineer

George Christian Anthon	William Wilson Lighthipe
Morton Arendt	Johnston Livingston, Jr.
William Gibson Burns	Gustavo Lobo
John Thompson Conover	Laurent Lowenberg
Edwin Howell Daly	Christopher Meyer Lowther
Arthur Diamond Dunn	Lucius Trowbridge Martin
Emerson Foote, Jr.	William James McClure
Albert Rolaz Gallatin	Henry Bedinger Mitchell
Gouverneur Morris Haskell	Henry Coit Mortimer, Jr.
William Phelps Jones	Mortimer Lewis Newman
Theodore Harold Joseph	Thomas Bloodgood Peck, Jr.
Hanford Chase Judson	Juan Estevan Reyna

Bartow White Van Voorhis, 2d

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Metallurgical Engineer

William Arthur Bostwick	Victor Buchanan Buck
-------------------------	----------------------

[2]

Bachelor of Science

(Course in Analytical and Applied Chemistry)

Wray Annin Bentley	Edmund Julius Levine
Eugene Helms Hodgson	Albert Gladding Stillwell
	Harry Herbert Sutro

[5]

Bachelor of Science

(Course in Architecture)

Henry Ludlow Beadel	Hugh Sisson Magruder, A.B.
Charles Howard Burnside, B.S.	Hugh McLellan
Kenneth Lincoln Caswell	James William O'Connor
Theakston De Coppet	William Aloysius O'Connor
Louis Gottschall	Charles Ludwig Otto
Alfred Hermann Gumaer	William Edward Parsons
Charles Sidney Haight	Arthur Ware

Raymond Duy Weekes

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Master of Arts

Ernest Kempton Adams, Ph.B., Yale University, 1896; E.E., Columbia University, 1897.	William Joseph Clarke, A.B., Columbia College, 1897.
Charles Otto Baese, B.S., New York University, 1892; LL.B., 1893.	Treadwell Cleveland, Jr., A.B. Williams College, 1897.
Elijah William Bagster-Collins, A.B., Brown University, 1897.	Emily Matilda Coddington, A.B., London University, 1896.
Frederic Huntington Bartlett, A.B., Harvard University, 1895.	Alexander Griswold Cummins, Jr., A.B., Swarthmore College, 1889.
Louis Becker, Ph.B., New York University, 1896.	Elizabeth Brown Cutting, A.B., Vassar College, 1893.
Frances Spaulding Belcher, A.B., Vassar College, 1893; A.B., Rad- cliffe College, 1895.	Franklin Abbott Dorman, A.B., Harvard University, 1894.
Anson Gardner Betts, Ph.B., Yale University, 1897.	Isabel Eaton, B.L., Smith College, 1888.
Alexander Max Bing, B.S., College of the City of New York, 1897.	Eugene Harold Eising, B.S., College of the City of New York, 1894.
Martin Birnbaum, A.B., College of the City of New York, 1897.	Millard Henry Ellison, A.B., College of the City of New York, 1896.
Lewis Nathaniel Chase, A.B., Columbia College, 1895.	Dora Bay Emerson, B.S., Wellesley College, 1892.
	Elmer Wallace Firth, C.E., Cornell University, 1895.

- Charles Francis Fitzgerald, A.B.,
Holy Cross College, 1894.
- Wilson Warren Fowler, B.S.,
Rutgers College, 1897.
- William Henry Fry, A.B.,
Columbia College, 1897.
- James Lambert Gibson, B.S.,
University of Utah, 1895.
- Lawrence Goldberg, B.S.,
College of the City of New York,
1896.
- George Arthur Goodell, A.B.,
Amherst College, 1894.
- August Henry Gotthelf, B.S.,
Columbia University, 1897.
- Appleton Grannis, A.B.,
Columbia College, 1893.
- Henry David Gray, Ph.B.,
Colgate University, 1897.
- Louis Herbert Gray, A.B.,
Princeton University, 1896.
- Nathan Williams Green, A.B.,
Yale University, 1894.
- Ellen Gunton, A.B.,
Swarthmore College, 1896.
- Lucy Heald, A.B.,
Smith College, 1895.
- Hugh Henry Herdman, Jr., A.B.,
Wabash College, 1896.
- Leo Walter Hildburgh, E.E.,
Columbia University, 1897.
- Benjamin Felix Hill, B.S.,
University of Texas, 1896; M.S.,
1897.
- Frank Winfield Hubby, Jr., A.B.,
Yale University, 1895.
- Frederic Lincoln Hunt, A.B.,
College of the City of New York,
1896.
- Lester Inglis, B.S.,
Rutgers College, 1896.
- John Duer Irving, A.B.,
Columbia College, 1896.
- Harry Jeschke, A.B.,
Adelbert College, 1895.
- Franklin Johnson, Jr., A.B.,
University of Chicago, 1896.
- Edward Kasner, B.S.,
College of the City of New York,
1896.
- Florence Corliss Lamont, B.S.,
Smith College, 1893.
- William Lipman Levy, Ph.B.,
New York University, 1897.
- Hermann Andreas Loos, B.S.,
College of the City of New York,
1895.
- William Gilman Low, Jr., A.B.,
Yale University, 1897.
- John Henry Lyon, A.B.,
Columbia College, 1897.
- James Bruce McClelland, B.S.,
Columbia University, 1897.
- Henry Clay McComas, Jr., A.B.,
Johns Hopkins University, 1897.
- Leo Bernard Meyer, A.B.,
College of the City of New York,
1894.
- Lucia Morrill, A.B.,
Wellesley College, 1890.
- Joseph Henry O'Connell, A.B.,
Holy Cross College, 1894.
- Nathan Orcutt Petty, A.B.,
Columbia College, 1897.
- John Hill Prentice, A.B.,
Columbia College, 1897.
- Allan Conn Rowe, A.B.,
Columbia College, 1896.
- Charles Aaron Rubenstein, B.L.,
University of Cincinnati, 1891.
- Adelaide Rudolph, A.B.,
Hiram College, 1879.
- Henry Clay Ruhl, A.B.,
College of the City of New York,
1893.
- George Reese Satterlee, A.B.,
Columbia College, 1894.
- William August Schaper, B.L.,
University of Wisconsin, 1895.
- Emilius William Scherr, Jr., A.B.,
College of the City of New York,
1896.
- John Philip Schneider, A.B.,
Wittenberg College, 1896.

- Stephen Faunce Sears, A.B.,
Harvard University, 1896.
- Gerald Birney Smith, A.B.,
Brown University, 1891.
- Otto Charles Sommerich, A.B.,
College of the City of New York,
1896.
- Charles Anchel Son, A.B.,
University of California, 1897.
- George Albert Soper, B.S.,
Rensselaer Polytechnic Institute,
1895.
- Eugene Edward Spiegelberg, A.B.,
Columbia College, 1897.
- Benjamin Horace Stern, Ph.B.,
New York University, 1895.
- Ettie Stettheimer, A.B.,
Columbia University (Barnard
College), 1896.
- Israel Strauss, A.B.,
Brown University, 1894.
- Morris Lincoln Strauss, A.B.,
Columbia College, 1897.
- Edwin Platt Tanner, A.B.,
Columbia College, 1897.
- Cornelius Henry Tiebout, Jr., A.B.,
Brooklyn Polytechnic Institute,
1897.
- Rudolf Tombo, Jr., B.S.,
College of the City of New York,
1895.
- Percy Rivington Turnure, A.B.,
Harvard University, 1894.
- Harlan Updegraff, Ph.B.,
Cornell College, Iowa, 1894.
- Christopher Van Deventer, E.E.,
Columbia University, 1897.
- Samuel Stuart Wallace, A.B.,
Dickinson College, 1890.
- Leon Laizer Watters, B.S.,
University of Utah, 1897.
- Arthur Werdenschlag, B.S.,
College of the City of New York,
1895.
- Edward Williams White, B.S.,
Georgetown College, Ky., 1884.
- Edgar Swan Wiers, A.B.,
Adelbert College, 1895.
- Maude Wilcox, A.B.,
Columbia University (Barnard
College), 1897.

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Doctor of Philosophy

- Gary Nathan Calkins, B.S.,
Massachusetts Institute of Tech-
nology, 1890.
- Lawrence Thomas Cole, A.B.,
University of Michigan, 1892 ;
A.M., 1896.
B.D., General Theological Semi-
nary, 1896.
- James Walter Crook, A.B.,
Oberlin College, 1891.
- John Franklin Crowell, A.B.,
Yale University, 1883.
Dr. Litt. (honorary), University
of North Carolina, 1889.
- Wilber Dwight Engle, A.B.,
Albion College, 1893 ; A.M.,
1894.
- John Archibald Fairlie, A.B.,
Harvard University, 1895 ; A.M.,
1896.
- Lucia Catharine Graeme Grieve, A.B.,
Wellesley College, 1883 ; A.M.,
1893.
- Abel Joel Grout, Ph.B.,
University of Vermont, 1890.
- Matthew Brown Hammond, Ph.B.,
University of Michigan, 1891 ;
M.L., University of Wisconsin,
1893.
- Marshall Avery Howe, Ph.B.,
University of Vermont, 1890.
- Adam Leroy Jones, A.B.,
Williams College, 1895.

- Wilfrid Lay, A.B.,
 Columbia College, 1893.
 John Angus MacVannel, A.B.,
 University of Toronto, 1893 ;
 A.M., 1894.
 Albert Prescott Mathews, B.S.,
 Massachusetts Institute of Tech-
 nology, 1892.
 John Alexander Mathews, B.S.,
 Washington and Jefferson Col-
 lege, 1893 ; M.S., 1896. A.M.,
 Columbia University, 1895.
 Hugo Radau, A.M.,
 Columbia University, 1897.
 Per Axel Rydberg,
 Graduate Royal Gymnasium,
 Skala, Sweden, 1881. B.S., Uni-
 versity of Nebraska, 1891 ; A.M.,
 1895.
 [22]
- Frank Schlesinger, B.S.,
 College of the City of New York,
 1890. A.M., Columbia Univer-
 sity, 1897.
 Edward Lee Thorndike, A.B.,
 Wesleyan University, 1895. A.B.,
 Harvard University, 1896 ; A.M.,
 1897.
 William Morrow Washington, B.S.,
 Centre College, 1895.
 Helen Isabel Whiton, A.B.,
 Smith College, 1894. A.M.,
 Columbia University, 1897.
 Robert Harvey Whitten, B.L.,
 University of Michigan, 1896.

HONORARY DEGREES

Master of Arts

George Frederic Kunz
 John Fritz
 Alphonse Fteley

Doctor in Sacred Theology

(Ad eundem)

Rt. Rev. William Neilson McVickar, D.D.

Fellows and Scholars

University Fellows

- | | |
|---|-----------------------------|
| CARL LOTUS BECKER,
University of Wisconsin, B.L., 1896;
graduate student, 1896-98. | Subject, Constitutional Law |
| WILLIAM MAXWELL BURKE,
Oberlin College, A.B., 1896; A.M., 1898.
Columbia University, University Fellow in
Political Economy, 1897-98. | " Political Economy |
| ELMER WALLACE FIRTH,
Cornell University, C.E., 1895.
Columbia University, A.M., 1898. | " Sanitary Engineering |
| GEORGE BALTHAZAR GERMANN,
Columbia College, A.B., 1895; Assistant in
Mathematics, 1895-98. | " Education |
| WILLIAM HENRY GLASSON,
Cornell University, Ph.B., 1896; Fellow,
1896-97.
Fellow in the University of Pennsylvania,
1897-98. | " Administration |
| LOUIS HERBERT GRAY,
Princeton University, A.B., 1896; gradu-
ate student, 1896-97.
University Fellow in Indo-Iranian Lan-
guages, Columbia University, 1897-98. | " Indo-Iranian Languages |
| TRACY ELLIOT HAZEN,
University of Vermont, A.B., 1897.
Columbia University, University Scholar in
Botany, 1897-98. | " Botany |
| GEORGE FREDERICK HEFFELBOWER,
University of Michigan, A.B., 1897; A.M.,
1898. | " Latin |
| BERT HODGE HILL,
University of Vermont, A.B., 1895.
Principal of the Newport, Vt., Academy,
1895-98. | " Greek |
| OWEN BENJAMIN HUNTSMAN,
Harvard University, A.B., 1897; A.M.,
1898. | " Philosophy |

- | | |
|---|-------------------------|
| JOHN DUER IRVING,
Columbia College, A.B., 1896; Columbia
University, University Fellow in Geology,
1897-98. | Subject, Geology |
| EDWARD KASNER,
College of the City of New York, B.S.,
1896.
Columbia University, A.M., 1897; Uni-
versity Fellow in Mathematics, 1897-98. | " Mathematics |
| WALTER COLUZZI KRETZ,
Columbia College, A.B., 1896; Columbia
University, A.M., 1897; University Scholar
in Astronomy, 1897-98. | " Astronomy |
| NEWTON DENNISON MERENESS,
University of Michigan, A.B., 1892; A.M.,
1894.
Columbia University, University Scholar in
History, 1895-96. | " History |
| JOSEPH WARREN MILLER, Jr.,
Pennsylvania State College, B.S., 1897. | " Mechanics |
| FREDERICK CLARK PAULMIER,
Princeton University, B.S., 1894; M.S.,
1896.
Graduate student at Columbia University,
1896-98. | " Zoölogy |
| FREDERICK JOHN POPE,
Queens University, Kingston, Can., A.M.,
1891.
Graduate student at Columbia University,
1897-98. | " Chemistry |
| JESSE ELIPHALET POPE,
University of Minnesota, B.S., 1895; M.S.,
1897.
Graduate student at Columbia University,
1897-98. | " Economics |
| COMADORE EDWARD PREVEY,
University of Wisconsin, B.L., 1895.
Graduate student at Yale University, 1897-
98. | " Statistics |
| ARTHUR FRANK JOSEPH REMY,
College of the City of New York, A.B., 1890.
Columbia University, A.M., 1897; Uni-
versity Scholar in Comparative Philology,
1897-98. | " Comparative Philology |
| WILLIAM ROY SMITH,
University of Texas, A.B., 1897. | " American History |

- EDWIN PLATT TANNER, Subject, American History
Columbia College, A.B., 1897; Columbia
University, A.M., 1898; University Scholar
in History, 1897-98.
- RUDOLF TOMBO, Jr., " German
College of the City of New York, B.S., 1895.
Columbia University, A.M., 1898; Uni-
versity Scholar in German, 1897-98.
- ROBERT SESSIONS WOODWORTH, " Psychology
Amherst College, A.B., 1891.
Harvard University, A.B., 1896; A.M.,
1897; Assistant in the Physiological Lab-
oratory of Harvard University, 1897-98.

Barnard Fellow

HEINRICH RIES, Ph.D.

Henry Drisler Fellow

CORLISS FITZ RANDOLPH, A.M.

Schiff Fellow

WILLIAM HENRY FRY, A.M.

Alumni Association Fellows

(College of Physicians and Surgeons)

FREDERICK R. BAILEY, M.D., Pathology

JOSEPH A. BLAKE, M.D., Anatomy

EVAN M. EVANS, Pathology

John Tyndall Fellow

ROBERT BOWIE OWENS, E.E.

McKim Fellows

HARRY ALLAN JACOBS, Ph.B.

JOHN RUSSELL POPE, Ph.B.

Class of '70 Fellow

LEWIS BUFFET CARLL, A.M.

Columbia Fellow

WILLIAM CLARK AYRES, Ph.B.

President's University Scholars

GEORGE SHELDON BOWMAN, Roanoke College, A.B., 1894.	Subject, Jurisprudence
FRANCIS HAROLD DIKE, Columbia College, A.B., 1897. Student at the University of Paris, 1897-98.	" Romance Literature
DAVID GRIFFITHS, South Dakota Agricultural College, B.S., 1892 ; M.S., 1893.	" Botany
WILLIAM A. RAWLES, Indiana University, A.B., 1884 ; A.M., 1895 ; Instructor in History and Economics at Indiana University.	" Administrative Law
STEPHEN FAUNCE SEARS, Harvard University, A.B., 1896. Graduate student at Columbia University, 1897- 98.	" Literature
JOHN REED SWANTON, Harvard University, A.M., 1897.	" Anthropology
SHERBURNE FROST TAYLOR, Cornell University, B.S., 1897.	" Chemistry

University Scholars

WILLIAM ALFRED ACKERMAN, Lafayette College, A.B., 1894 ; A.M., 1897. Graduate student at Columbia University, 1897- 98.	Subject, Education
BRENTON THOBURN BADLEY, Ohio Wesleyan University, A.B., 1897.	" Philosophy
FREDERIC HUNTINGTON BARTLETT, Harvard University, A.B., 1895. Graduate student at Columbia University, 1897- 98.	" Literature
WALTER PERCY BORDWELL, University of California, B.L., 1898.	" Public Law
JOHN WOODS BRENNAN, Williams College, A.B., 1894.	" Zoölogy
CHARLES HOWARD BURNSIDE, Penn College, Iowa, B.S., 1896. Columbia University, B.S., 1898.	" Mechanics
FREDERICK MORGAN DAVENPORT, Wesleyan University, A.B., 1889. Graduate student at Columbia University, 1897- 98.	" Sociology

GEORGE VAN NESS DEARBORN, Dartmouth College, B.Lit., 1890. Columbia University, M.D., 1893. Harvard University, A.M., 1896; Assistant in Philosophy, 1896-97; University Scholar, 1897- 98.	Subject, Psychology
CHARLES HAMMOND ECKERSON, Columbia University, E.M., 1898.	" Geology
WILSON WARREN FOWLER, Rutgers College, B.S., 1897. Columbia University, A.M., 1898.	" Education
HENRY DAVID GRAY, Colgate University, Ph.B., 1897. Columbia University, A.M., 1898.	" Literature
FERRIS GREENSLET, Wesleyan University, A.B., magna cum laude, 1897; A.M., 1898.	" English
WILLIAM BUCK GUTHRIE, Lennox College, Iowa, B.S., 1893. State University of Iowa, Ph.B., 1895. Graduate student at University of Chicago, 1896- 98.	" Political Science
HUGH HENRY HERDMAN, Jr., Wabash College, A.B., 1896; graduate student, 1896-97. Columbia University, A.M., 1898.	" Literature
BENJAMIN FELIX HILL, University of Texas, B.S., 1896; M.S., 1897. Columbia University, University Scholar in Ge- ology, 1897-98.	" Geology
WARREN LANNING HOAGLAND, Jr., Wesleyan University, A.B., 1898.	" Social Science
FREDERICK BIRD JONES, Colgate University, A.B., 1898.	" Latin
JOHN RANDOLPH NEAL, University of Tennessee, A.B., 1893. Graduate student at Columbia University, 1897- 98.	" Public Law
HARRY GRANT PLUM, Iowa State University, Ph.B., 1894; A.M., 1896.	" History
CHARLES LEE RAPER, Trinity College, N. C., A.B., 1892.	" American History
JAMES THOMSON SHOTWELL, University of Toronto, A.B., 1898.	" European History
EDWARD LAURENCE SMITH, Delaware College, A.B., 1896; A.M., 1898.	" Romance Languages
ALVAN ALONZO TENNEY, Columbia College, A.B., 1898.	" Economics

JOHN CUTLER TORREY, University of Vermont, A.B., 1898.	Subject, Zoölogy
BENJAMIN WOFFORD WAIT, Wofford College, S. C., A.B., 1895 ; A.M., 1896. Graduate student at Columbia University, 1897-98.	" Finance
FRANKLIN ZEIGER, Columbia College, A.B., 1898.	" Philosophy
ALEXANDER HENRY WILLIAM ZERBAN, Columbia College, A.B., 1897.	" Physics

Alumni Competitive Scholars in the College

1895	1897
GEORGE SIDNEY HELLMAN	Not awarded.
1896	1898
HARRY HULL ST. CLAIR, JR.	WALTER LESTER GLENNY

Brooklyn Scholars in the College

1896	
HENRY SYDNOR HARRISON	ROBERT CHIPMAN HULL
CHARLES JONES OGDEN	
1897	
GEORGE HUNTINGTON WALBRIDGE	
1898	
GEORGE BECKWITH KEELER	JOSEPH GARDNER HOPKINS
GEORGE HAMMOND HUNTING	

O'Dwyer Scholar in Medicine

JOSEPH O'DWYER

John D. Jones Scholar in Biology

FRANCIS BERTODY SUMNER, B.S.

BARNARD COLLEGE

Hartley House Fellow

LYDIA SARAH CODY, A.B.

Fiske Graduate Scholar

JESSIE WALLACE HUGHAN, A.B.

Ella Weed Scholar

AGNES BALDWIN, A.B.

Curtis University Scholars

1896
 ELEANOR FYFE ANDREWS, A.M. CAROLINE TILDEN MITCHELL, B.S.
 SUSAN ISABELLA MYERS, A.B. ALINE CROQUET STRATFORD, A.B.

1897
 LILY LOGAN, A.B.
 ALICE JANE GRAY PERKINS, A.B. EMILY GERTRUDE PERKINS, A.B.

1898
 CAROLINE ELLEN FURNESS, A.B.

Brooklyn Scholars

1896
 Not Awarded. 1897
 Not Awarded.
 1898
 GRACE MALVINA PETERS ADA BLANCHE CLOUS NEISWENDER
 JEANNETTE ROWLAND SEIBERT

Trustees Competitive Entrance Scholars

1897
 MAY GODFREY WENDELL 1898
 GRACE MALVINA PETERS

Veltin School Scholar

ELLINOR TEN BROECK REILEY

Daughters of the American Revolution Scholar in American History

FLORENCE LESLIE KYTE

TEACHERS COLLEGE**Fellows**

BURTIS BURKE BREESE, University of Kansas, A.B., 1896. Harvard University, A.B., 1897; A.M., 1898.	Subjects, Education and Psychology
EDWIN GRANT DEXTER, Brown University, B.P., 1891; A.M. (summa cum laude), 1892.	" Education, Psychology, and Philosophy
LOUIS HUTCHINSON GALBREATH, Cornell University, B.L., 1890.	" Education and Anthropology
DAVID R. MAJOR, Wabash College, B.S., 1890; Cornell University, Ph.D., 1896.	" Education and Psychology

Manual Training Fellow

FOSTER HEATHCOTE IRONS.

Scholars

GEORGE GRISWOLD BROWER, Syracuse University, B.S., 1887.	Subjects, Education and Mathematics
GEORGE ALLEN HUBBELL, Antioch College, B.S., 1890 ; A.M., 1891.	" Education and Anthropology
FRANK CLARENCE SPENCER, University of Colorado, B.S., 1894.	" Education and Anthropology
WILLIAM ISAAC CHAMBERLAIN, Rutgers College, A.B., 1882 ; A.M., 1886.	" Education and Philosophy
JASPER NEWTON DEAHL, Peabody Normal and University of Nashville, A.B., 1889 ; A.M., 1889. Harvard University, A.B., 1893.	" Education and English
AGNES MCRAE,	" Education, Geography, and Biology
EVELINA CARROLL SIMON, Women's College of Baltimore, A.B., 1898.	" Education, Physics, and Mathematics
MABEL MINERVA YOUNG, Wellesley College, A.B., 1898.	" Education, Psychology, and Mathematics
FREDERICK LOWELL GREENE, Massachusetts Agricultural College and Boston University, B.S., 1894.	" Education and Psychology

Award of Prizes and Honors, Commencement, 1898

COLUMBIA COLLEGE

Prize of the Alumni Association

FRANKLIN ZEIGER

Chanler Historical Prize

LEWIS DAVID EINSTEIN

Final Honors

English Language and Literature

LEWIS DAVID EINSTEIN

History

MARTIN HEYMAN VOGEL

Mathematics

ROBERT KING MORSE

Philosophy

FRANKLIN ZEIGER

Political Economy

ALVAN ALONZO TENNEY

Rhetoric and English Composition

SAMUEL COPP WORTHEN

Junior Honors

Physics and Chemistry

THEOPHILUS PARSONS

Sophomore Honors

Classics

ALFRED EINSTEIN COHN

Mathematics

FREDERICK WILLIAM JUSTUS HEUSER

Germanic Languages and Literatures

JAMES JOSEPH FINNIGAN

FREDERICK WILLIAM JUSTUS HEUSER

Romance Languages and Literatures

HARRY HULL ST. CLAIR, JR.

COLLEGE OF PHYSICIANS AND SURGEONS

Harsen Prizes for Proficiency at Examination

First prize : VICTOR C. PETERSEN

Second prize : PHILIP SCHIEFFELIN SABINE

Third prize : HUGHES DAYTON

Examination Honors

WILLIAM W. VIBBERT

GEORGE ALEXANDER SAXE

JOHN MORTIMER TAYLOR

EMIL ALBIN RUNDQUIST

CHARLES MALLORY WILLIAMS

BURTON J. LEE

STANLEY OWEN SABEL

Alumni Association Prize

No Award

Joseph Mather Smith Prize

No Award

SCHOOL OF POLITICAL SCIENCE

Bennett Prize

ALVAN A. TENNEY

Prize Lectureship

WILLIAM R. SHEPHERD

Toppan Prize

FREDERICK GROS

Honorable Mention

JOHN ARCHIBALD FAIRLIE

DIRECTORY OF OFFICERS

The numeral in parentheses after each name refers to the page on which names and titles are given in full.

B. = Barnard College. H. = Havemeyer. T. = Teachers College.
 C. = College. L. = Library. U. = University.
 E. = Engineering. P. & S. = College of Physicians and Surgeons. V. C. = Vanderbilt Clinic.
 F. = Fayerweather. S. = Schermerhorn. W. = West.

NAME	OFFICE HOURS	OFFICE	RESIDENCE
Abbe , R. Clin. Lect. (6)		P. & S.	13 W. 50
Aldrich, J. Clin. Asst. (14)		V. C.	
Andrews, W. C. Asst. (12)	Tu. Th. Sat. 9.30-12.30	201 F.	Hotel Margaret, Bklyn
Anthony, W. A. Lect. (14)	M. W. Th. 11.30-12.30	503 E. V. C.	313 W. 33
Armstrong, W. Clin. Asst. (14)		V. C.	
Atwood, C. E. Clin. Asst. (14)			
Babbitt , E. H. Instr. (7)	W. F. 11.30	312 W.	
Bailey, F. R. Asst. (11)		P. & S.	1165 E. Jersey st., Elizabeth
Bailey, P. Clin. Asst. (14)		V. C.	
Baker, F. T. Prof. (3)	M. Th. 10.30 -11.30	T.	208 W. 119
Baker, G. H. Librarian (v)	M.-F. 10-12	201 L.	294 Manhattan ave.
Ball, A. B. Prof. (5)		P. & S.	42 W. 36
Bancroft, F. Lect. (14)	F. 5.30	402 L.	1700 H st., N. W., Washing- ton, D. C.
Bargy, H. Lect. (14)			
Bayles, G. J. Prize Lect. (13)	F. 4.30	301 L.	Orange
Beebe, W. H. H. Sec. (v)	M.-F. 9-5 S. 9-12	213 L.	425 W. 117
Benns, C. P. Instr. (8)	M.-F. 9-11.30	T.	18 Landscape ave., Yonkers
Biggs, G. P. Dem. (6)		P. & S.	5 W. 58
Biklé, C. E. Asso. Prof. (4)	Tu. Th. 2.30	T.	107 W. 119
Bill, E. W. Clin. Asst. (14)		V. C.	
Black, A. Tutor (10)	M.-F. 10.30- 4.30	507 E. P. & S.	1606 Lex. ave. 3 W. 68
Blake, J. A. Asst. Dem. (6)		405 S.	123 W. 82
Boas, F. Lect. (13)	M. 10.30	P. & S.	951 Greene ave., B'klyn
Boag, E. T. Reg.			
Bogert, M. T. Instr. (9)	M. W. F. 2.30-4.30	408 H.	259 B'way, Flushing
Bonar, A. B. Clin. Asst. (14)		V. C.	

NAME	OFFICE HOURS	OFFICE	RESIDENCE
Brannan, J. W. Instr. (8)		P. & S.	11 W. 12
Braunlich, A. R. Clin. Asst. (14)		V. C.	
Brewer, G. E. Asst. Dem. (6)		P. & S.	68 W. 46
Brewster, W. T. Tutor (9)	Daily 9.30-11.30	507 F.	112 W. 81 N. Y. Botanical Garden
Britton, N. L. Emer. Prof. (16)			183 W. 73
Brockway, F. J. Asst. Dem. (6)	Tu. W. Th. 2.30	P. & S. 505 F.	758 West End ave.
Brouner, W. B. Clin. Asst. (14)		V. C.	
Buck, A. H. Clin. Prof. (5)		P. & S.	14 E. 45
Bull, W. T. Prof. (2)		P. & S.	35 W. 35 38 E. 53
Burchell, H. J. Jr. Asst. (11)			
Burdick, F. M. Prof. (2)	Tu.-F. 10.30-11.30	303 L.	115th st., River- side drive
Burgess, J. W. Prof. (1)	M.-Th. 3.30-5	404 L.	323 W. 57
Burr, W. H. Prof. (3)	M.-F. after 2	401 E.	151 W. 74
Butler, N. M. Prof. (2)	M.-Th. 2	420 L.	119 E. 30
Cabot, J. Clin. Asst. (14)		V. C.	
Calkins, G. N. Tutor (9)	M. W. F. 9.30-12.30	604 S.	1 W. 81
Campbell, A. Clin. Asst. (14)		V. C.	
Canfield, G. F. Prof. (4)	M. Tu. 4.30- 5.30	302 L.	32 E. 33
Carmalt, C. C. Asst. Dem. (6)		P. & S.	40 E. 58
Carpenter, G. R. Prof. (3)	Tu. Th. S. 9.30	508 F.	501 W. 113
Carpenter, W. H. Prof. (2)	M. W. 1.30-2.30 Tu. Th. 3.30-4.30	316 W. V. C. V. C.	253 W. 100
Carr, M. L. Clin. Asst. (15)			
Carter, C. B. Clin. Asst. (15)	Tu. Th. 10-10.45	T. V. C.	359 W. 121
Castle, E. H. Prof. (4)			
Caswell, W. H. Clin. Asst. (15)	Tu. Th. 1.30	314 S.	Garrison
Cattell, J. McK. Prof. (2)	M. W. F. 1.30-3.30 Tu. Th. 10-4	303 H.	51 E. 54 317 W. 114
Chandler, C. F. Prof. (1)		P. & S.	46 E. 29
Chaplin, S. Lect. (14)	Tu. Th. 11.30	C.	561 5th ave. New Haven
Cheesman, T. M. Instr. (7)		P. & S.	
Chittenden, J. B. Tutor (10)			
Chittenden, R. H. Lect. (14)	M. Tu. W. 9.30-10.30	T. P. & S.	17 W. 106 39 W. 36
Churchill, A. V. Prof. (5)			
Claiborne, J. H. Instr. (8)	Tu. Th. 10.30-11.30	404 W.	280 W. 70
Clark, J. B. Prof. (4)			
Cohn, A. Prof. (3)	M. F. 2.30	302 W.	250 W. 94
Cole, F. N. Prof. (4)	M. 10.30- 11.30	406 C.	

NAME	OFFICE HOURS	OFFICE	RESIDENCE
Coley, W. B. Clin. Lect. (6)		P. & S.	5 Park ave.
Coll, A. P. Clin. Asst. (15)		V. C.	
Colles, C. J., Clin. Asst. (15)		V. C.	
Collins, H. D. Asst. Dem. (6)		P. & S.	119 E. 35
Cook, W. W. Asst. (12)	M.-F. 9.30-11.30	404 C. 304 E.	174 W. 96 Irvington
Coster, E. L. Asst. (12)		P. & S.	35 E. 60
Cowen, W. Instr. (8)		P. & S.	62 W. 50
Cragin, E. B. Lect. (14)			
Crampton, H. E. Jr. Lect. (14)	Tu. Th. 9.30- 12.30	611 S. P. & S.	158 W. 119 22 W. 55
Crary, G. W. Asst. Dem. (6)			
Crocker, F. B. Prof. (3)	Absent on leave	V. C.	
Cunningham, R. H. Clin. Asst. (15)			
Curtis, C. C. Tutor (9)	Tu. 10-11	501 S.	Corcoran Manor, Mt. Vernon 120 Broadway
Curtis, E. Emer. Prof. (16)			
Curtis, H. S. Asst. (10)	F. S. 10.30- 12.30	401 F. P. & S.	New Canaan 327 W. 58
Curtis, J. G. Prof. (1)			
Cushing, H. A. Tutor (10)	M. W. 2	414 W.	251 W. 54
Dade, C. T. Clin. Asst. (15)		V. C.	
Darling, E. A. Supt. of B. & G. (v)	M.-F., 10-11	110 L.	116th st., Boulevard
Davis, H. S. Tutor (10)	M. W. 11.30-12.30	606 F.	408 W. 124
Day, A. M. Asst. (11)	M. 11.30, W. F. 12.30	412 W.	128 W. 103
Day, W. S. Asst. (12)	Tu.-F. 10-12	214 B.	203 W. 85
Dean, B. Adj. Prof. (4)	M. W.	605 S.	20 W. 82
Delafield, F. Prof. (1)		P. & S.	12 W. 32
Derleth, C., Jr. Asst. (11)		509 E.	674 E. 135
Dodge, R. E. Prof. (4)	M.-F. 8.30-9 M. W. 3.30 -5	T.	684 St. Nicholas ave.
Dowd, C. N. Instr. (9)		P. & S.	135 W. 73
Draper, W. H. Emer. Prof. (16)			19 E. 47
Draper, W. K. Instr. (7)		P. & S.	39 E. 35
Duffie, C. R. Chap. Emer. (16)			263 Lexington ave.
Dunning, W. A. Prof. (3)	Absent on leave	V. C.	
Dwight, J., Jr. Clin. Asst. (15)			
Earle, M. L. Lect. (14)	Th. 2.30	209 B.	462 W. 22
Egbert, J. C. Adj. Prof. (4)	Tu. 2.30-3 30	310 C.	364 Webster ave., Jersey City
Egleston, T. Emer. Prof. (16)			35 Wash. sq.
Eliot, E., Jr. Instr. (8)		P. & S.	48 W. 36
Ely, L. W. Clin. Asst. (15)		V. C.	
Eustis, A. C. Asst. (13)		P. & S.	346 W. 58
Ewing, J. Instr. (8)		P. & S.	260 W. 57
Farrand, L. Instr. (7)	M. 11.30	405 S.	12 E. 29
Ferris, A. W. Clin. Asst. (15)		V. C.	
Finch, E. A. Instr. (8)		T.	602 St. Nicholas ave.

NAME	OFFICE HOURS	OFFICE	RESIDENCE
Fisher, G. F. Bursar (v)	M.-F. 9-5 Sat. 9-12	109 L.	124 E. 24
Fiske, T. S. Prof. (4)	Tu. Th. 11-12	401 C.	328 W. 57
Fitz-Gerald, J. D. II Asst. (12)	W. 2.30-3.30	306 W.	245 W. 109
Foote, E. M. Clin. Asst. (15)		V. C.	
Fox, G. H. Clin. Prof. (5)		P. & S.	18 E. 31
Franz, S. I. Asst. (12)	Tu. Th. 1.30	411 S.	62 Cottage st., Jersey City
Freeborn, G. C. Instr. (6)		P. & S.	215 W. 70
Freedman, W. H. Tutor (9)	M. W. F. 10.30-12.30	505 E.	157 W. 119
Frothingham, R. Instr. (9)		P. & S.	19 E. 38
Fuld, J. E. Clin. Asst. (15)		V. C.	
Gallaudet, B. B. Dem. (6)		P. & S.	162 W. 83
Gibney, H. W. Clin. Asst. (15)		V. C.	
Gibney, V. P. Clin. Prof. (5)		P. & S.	16 Park ave.
Giddings, F. H. Prof. (4)	Tu. 4.30 F. 2	403 L.	150 W. 79
Gies, W. J. Instr. (9)		P. & S.	346 W. 58
Gilley, W. C. Clin. Asst. (15)		V. C.	
Goodhart, S. P. Clin. Asst. (15)		V. C.	
Goodnow, F. J. Prof. (2)	M. W. 4-4.30	408 L.	49 Riverside dr.
Gordon, R. Instr. (7)	M. 2.30-4.30	408 F.	315 W. 71
Gottheil, R. J. H. Prof. (2)	F. 2.30	401 W.	169 W. 93
Hallock, W. Adj. Prof. (3)	Tu. Th. 10.30-11	404 F.	59 Morningside ave.
Hamlin, A. D. F. Adj. Prof. (2)	Tu. Th. 11.30-12.30	613 H.	1285 Columbus ave.
Hardon, H. W. Prof. (4)	Th. F. 2.30-3	305 L.	313 W. 71
Harper, C. A. Asst. (12)		H.	535 W. 125
Harpham, F. E. Asst. (11)			331 W. 24
Harriman, C. A. Instr. (7)		606 H.	301 W. 106
Hartley, F. Instr. (6)		P. & S.	46 E. 34
Hayden, J. R. Instr. (8)		P. & S.	107 W. 55
Hervey, W. A. Tutor (10)	M. 3.30-4.30 W. 10.30- 11.30, F. 11.30-12	314 W.	607 W. 138
Higgins, J. J. Clin. Asst. (15)		V. C.	
Hill, E. Y. Clin. Asst. (15)		V. C.	
Hill, G. W. Lect. (14)	Sat. 10.30	604 F.	West Nyack
Hiss, P. H., Jr., Asst. (11)		P. & S.	1 W. 30
Hobbs, A. B. Clin. Asst. (15)		V. C.	
Hodenpyl, E. Instr. (7)		P. & S.	143 W. 73
Hodgson, J. H. P. Clin. Asst. (15)		V. C.	
Holden, W. A. Clin. Asst. (15)		V. C.	
Hollick, A. Tutor (9)	M. W. F. 9.30-12.30	302 S.	New Brighton
Hooper, F. C. Asst. (11)	Daily 9.30-5	407 E.	463 Manhat- tan ave.
Hopkins, W. Clin. Asst. (15)		V. C.	
Hornbostel, H. F. Asst. (12)	M. 10.30-5.30	H.	Flatlands, N.Y.
Hotchkiss, L. W. Instr. (8)		P. & S.	49 W. 50
Hovey, R. Lect. (14)		B.	202 W. 103

NAME	OFFICE HOURS	OFFICE	RESIDENCE
Howe, H. M. Prof. (5)	M. W. F. 10.30-11.30	104 H. P. & S. V. C.	27 W. 73 209 E. 17
Huber, F. Instr. (8)			
Huber, J. Clin. Asst. (15)			
Hudson, W. G. Asst. (12)	M.-Sat. 9.30-5	304 E. P. & S. V. C.	73 W. 131 50 E. 73
Huntington, G. S. Prof. (2)			
Hurd, L. M. Clin. Asst. (15)			
Hutton, F. R. Prof. (1)	M.-F. 9-12.30	304 E.	319 W. 107
Hyde, F. S. Asst. (13)	Tu.-Sat. 10.30-4.30	505 H.	215 Schermerhorn st., Bklyn
Hyslop, J. H. Prof. (4)	M.-F. 1.15	416 L.	519 W. 149
Jackson, A. V. W. Prof. (3)	M. 10.20 Tu. Th. 1.20	510 F.	16 Highland pl., Yonkers
Jackson, F. W., Instr. (8)		P. & S.	12 W. 18
Jackson, G. T. Instr. (8)		P. & S.	14 E. 31
Jacobi, A. Clin. Prof. (5)		P. & S.	110 W. 34
Jacoby, H. Adj. Prof. (4)	Tu. Th. F. 9.30-10.30	608 F. P. & S. P. & S. V. C.	15 W. 53 31 W. 54 54 W. 76
James, W. B. Instr. (8)			
Jarman, G. W. Instr. (7)			
Jelliffe, S. E. Clin. Asst. (15)			
Jessup, D. S. D. Asst. (12)		P. & S.	360 W. 21
Johnson, A. B. Clin. Lect. (5)		P. & S.	12 E. 58
Jones, A. L. Asst. (13)	M. W. F. 2.30 Tu. Th. 1.30	416 L.	310 W. 113
Jordan, D. Asst. (12)	W. 11.30	301 W.	310 W. 113
Jouët, C. H. Asst. (12)	Tu.-Sat. 10-5	505 H.	Roselle, N. J.
Julien, A. A. Instr. (6)	M.-Sat. 2.30-4.30	303 S.	71 E. 87
Keener, W. A. Prof. (2)	W. Th. F. 12.30-1	Law Library	86 E. 56 107 E. 60
Kelly, E. Lect. (13)	M. Tu. 9.30	405 L.	
Kemp, J. F. Prof. (3)	M. W. F. 10.30-11.30	403 S. V. C.	211 W. 139
Kennedy, J. M. Clin. Asst. (15)			
Keyser, C. J. Tutor (10)	M.-Sat. 1.30-2.30	408 C.	24 Manhattan ave.
Kinnicut, F. P. Clin. Prof. (5)		P. & S.	39 E. 35
Kirchwey, G. W. Prof. (2)	M. 9.30-10.30 Tu. 10.30- 11.30, W. 11.30-12.30	414 L.	605 W. 113
Knapp, C. Asst. (11)	Tu. 12.30-1.30	B.	1773 Sedgwick ave.
Knapp, H. Clin. Prof. (5)		P. & S.	26 W. 40
Kress, M. K. Curator (13)	M.-F. 2.30-5	610 H.	248 W. 42
Kroeber, A. L. Asst. (11)	M.-Sat. 10.30	507 F. V. C.	316 W. 89
Krystall, B. E. Clin. Asst. (15)			
Larkin, J. H. Asst. (11)		P. & S.	498-W. 130
Laudy, L. H. Tutor (9)	Daily 9-5	313 H. P. & S.	117 W. 84
Leaming, E. Instr. (7)			

NAME	OFFICE HOURS	OFFICE	RESIDENCE
Lee, F. S. Adj. Prof. (4)		P. & S.	202 W. 81
Lefferts, G. M. Clin. Prof. (5)		P. & S.	212 Madison ave.
Lenher, V. Asst. (13)		H.	519 W. 123
Leshure, J. Clin. Asst. (15)		V. C.	
Lewis, R., Jr., Instr. (8)		P. & S.	14 E. 45
Lloyd, F. E. Asso. Prof. (5)	M. 2.30-3.30 Tu. Th. 3.30-4.30	T.	463 Manhattan ave.
Lockwood, G. R. Instr. (7)		P. & S.	44 W. 49
Loiseaux, L. A. Tutor (9)	M. 3.30 Th. 2.30	304 W. 508 H.	106 W. 105 159 Madison ave.
Lovell, E. B. Adj. Prof. (5)		213 L.	
Low, Seth, Pres. (1)			
Luquer, L. Mcl. Tutor (9)	M.-F. 2.30- 4.30	306 S.	321 W. 80
McBurney, C. Prof. (5)		P. & S.	28 W. 37
McCaffery, R. S. Asst. (12)	M.-F. 1.30- 2.30	102 H. P. & S.	960 E. 169 22 E. 56
McCosh, A. J. Clin. Lect. (5)		V. C.	
McCoy, J. J. Clin. Asst. (15)		309 C.	187 Gates ave., Bklyn
McCrea, N. G. Instr. (7)	M. 12.30-1.30	V. C. P. & S.	329 Amsterdam ave.
McEvoy, J. P. Clin. Asst. (15)			
McGinnis, E. H. L. Asst. (11)			
McGregor, J. H. Asst. (12)	M.-F. 1.30- 3.30	617 S.	380 St. Nicholas ave.
McHale, F. S. Clin. Asst. (15)		V. C.	
McIlhiney, P. C. Asst. (11)			320 St. Nicholas ave.
McLane, J. W. Emer. Prof. (16)		P. & S.	51 W. 38
McMurry, F. M. Prof. (5)	M. 2.20, W. 12.30, F. 11	24 T.	26 Hamilton Terrace, Wash- ington Heights
McWhood, L. B. Asst. (12)	W. 2.30-3.30	315 W. P. & S.	25 E. 54
McWilliams, C. A. Asst. (12)		311 W.	2 W. 72
MacDowell, E. A. Prof. (4)	Tu. F. 1.30	404 C.	320 W. 115
Maclay, J. Instr. (7)	Daily 11.30-12	V. C.	
Mailhouse, M. Clin. Asst. (15)		V. C.	
Mallett, E. P. Clin. Asst. (15)		V. C.	
Mallett, G. H. Clin. Asst. (15)		P. & S.	15 E. 49
Markoe, F. H. Instr. (8)			500 Madison ave.
Markoe, T. M. Emer. Prof. (16)			63 E. 56
Martin, W. Asst. Dem. (6)		P. & S.	
Marvin, W. T. Asst. (12)	M. W. F. 2 Tu. Th. 12.30	416 L. P. & S.	6 W. 130 4 Firstpl., Bklyn
Mathews, J. A. Tutor (10)		502 F.	681 West End ave.
Mathews, B. Prof. (3)	W. 2.30		692 Madison ave.
May, C. H. Instr. (8)		P. & S.	

NAME	OFFICE HOURS	OFFICE	RESIDENCE
Mayer, R. E. Instr. (6)	M.-F. 9.30-5	602 E.	
Mayo-Smith, R. Prof. (1)	M. W. F. 2.30	407 L.	305 W. 77
Merriam, C. E., Jr. Lect. (14)	M. W. 11.30-12.30	403 L.	221 W. 122 Cold Spring, N. Y.
Metcalfe, J. T. Emer. Prof. (16)			
Miller, E. H. Instr. (8)	Tu.-F. 10.30-11.30	506 H.	
Miller, S. O. Asst. (13)	M.-F. 1.30-4.30	603 E.	West Nyack, N. Y.
Mills, J. M. Clin. Asst. (15)		V. C.	
Mitchell, H. B. Asst. (12)	M. W. F. 9.30-10.30	404 C.	Flushing
Moore, J. B. Prof. (2)	Absent on leave		
Morgan, J. L. R. Tutor (10)	M.-F. 2-3	411 H.	47 Bayard st., New Brunswick
Moses, A. J. Prof. (2)	Tu.-F. 3-4	307 S.	50 Maple ave., Morristown
Munroe, H. S. Prof. (1)	Tu. Th. 2.30	308 H.	
Nelson, C. A. Deputy Librarian (v)	M.-Sat. 9.30-5.30	L. Reading Room	510 W. 143
Neumann, W. F. Asst. (12)		P. & S.	114 E. 59
Noble, H. Lect. (13)	Th. F. 4.30	411 L.	49 W. 57
Norrie, V. Instr. (7)		P. & S.	21 W. 37
Norris, C. Tutor (10)		P. & S.	23 E. 39
Oastler, F. Clin. Asst. (15)		V. C.	
Odell, G. C. D. Tutor (10)	M. Tu. W. 10.30-11.30	507 F.	112 W. 81
Olcott, G. N. Lect. (14)	M. W. F. 2.30-3.30		245 W. 109 30 Broad st.
Ordranax, J. Emer. Prof. (16)	M. Tu. W. 9.30-12.30	608 S.	850 Madison ave.
Osborn, H. F. Prof. (2)			
Osgood, H. L. Prof. (2)	Tu. 4.30-5	408 W.	526 W. 150 5 W. 50
Otis, F. N. Emer. Prof. (16)			
Page, C. H. Lect. (14)	Tu. Th. 10.30	307 W.	128 W. 103
Parker, C. T. Asst. (11)		P. & S.	46 E. 34
Parker, H. C. Tutor (9)	M. W. F. 10.30-12.30		
	Tu. Th. 2.30-4.30	201 F.	21 Ft. Greene pl., Bklyn 23 W. 50 57 W. 38
Partridge, W. T. Lect. (14)			
Peabody, G. L. Prof. (2)		P. & S.	
Peck, H. T. Prof. (2)	M. 12.30-1.30	301 C.	
Peck, M. R. Clin. Asst. (15)		V. C.	
Peele, R. Adj. Prof. (3)	M. W. F. 11.30-12.30	408 E.	The Monterey
Pellew, C. E. Adj. Prof. (5)	M.-F. 2-2.30	409 H.	51 E. 54
Perry, E. D. Prof. (3)	Tu. Th. 3.30 W. 12.30	304 C.	133 E. 55

NAME	OFFICE HOURS	OFFICE	RESIDENCE
Peterson, F. Instr. (8)		P. & S.	60 W. 50
Pfister, J. C. Tutor (9)	M.-F. 11.30-12.30 Tu. Th. 3.30-4.30		240 6th ave., Roseville, Newark
Plummer, J. F., Jr. Asst. Sec. (v)	M.-F. 9-5 Sat. 9-12	614 F. 213 L. P. & S.	44 E. 35 43 W. 53
Poore, C. T. Clin. Lect. (6)			
Price, T. R. Prof. (1)	Absent on leave	V. C.	
Proben, C. I. Clin. Asst. (15)		P. & S.	160 W. 59
Prudden, T. M. Prof. (3)	M. W. F. 11.30-12.30	E.	7 Highland pl., Yonkers
Pupin, M. I. Adj. Prof. (3)			
Putnam, C. R. L. Clin. Asst. (15)		V. C.	
Putnam, W. Lect. (14)	M. 10.30-11.30	505 F.	2047 7th ave.
Quackenbos, J. D. Emer. Prof. (16)			331 W. 28
Ransom, C. C. Clin. Asst. (15)		V. C.	
Rathbone, C. C. Clin. Asst. (15)		V. C.	
Rees, J. K. Prof. (1)	Tu. Th. F. 9.30-10.30 M. W. 10.30-11.30	610 F. P. & S.	1 W. 72 346 W. 58 618 W. 113
Richards, A. N. Asst. (12)			
Richards, C. R. Prof. (5)	Daily 10.30-12	T.	
Richards, H. M. Instr. (9)	M. W. F. 10.30-12.30 Tu. Th. Sat. 9.30-11.30	316 B.	847 West End ave.
Ricketts, P. de P. Prof. (1)	Tu. Th. Sat. 2.30-5	507 H.	115 E. 79
Riederer, E. J. Asst. (13)	W.-Sat. 10-5	206 H.	145 W. 94
Ripley, W. Z. Prize Lect. (13)			
Robinson, J. H. Prof. (4)	Tu. Th. 10-10.30 F. 3.30-4	403 L. P. & S.	170 W. 85 109 W. 78
Rockwell, W. H., Jr. Asst. Dem. (6)	M. W. F. 3.30	306 C.	61 W. 96
Rogers, J. D. Asst. (11)	F. 12.30	307 F.	
Rood, O. N. Prof. (1)	M. W. F. Sat. 12		
Russell, J. E. Prof. (5)	Tu. Th. 3.30 T.		207 W. 105
Savage, W. L. Dir. Gym. (v)	M. W. 2-4 Tu. Th. 9-10.30	U.	429 W. 117
Seligman, E. R. A. Prof. (2)	Tu. Th. 3-3.30	409 L.	324 W. 86
Sever, G. F. Instr. (7)	Tu. Th. 10.30-12.30	504 E.	115 W. 47
Seward, S. S. Jr. Asst. (11)	Th. 10.30	509 F.	113 W. 85
Shaw, W. R. Tutor (10)		B.	
Shepherd, W. R. Prize Lect. (13)	Tu. Th. 3.30	406 W.	
Sherman, F. D. Adj. Prof. (3)	F. 2.30-4.30	603 H.	312 S. B'way, Yonkers

NAME	OFFICE HOURS	OFFICE	RESIDENCE
Shrady, A. M. Clin. Asst. (15)		V. C.	
Silver, L. M. Clin. Asst. (15)		V. C.	
Simpson, W. K. Instr. (9)		P. & S.	952 Lexington ave.
Sloane, W. M. Prof. (4)	F. 11.30	301 L.	109 E. 69
Small, J. K. Curator (13)	Daily 9-6	508 S.	61 Morningside ave.
Smith, Miss E. J. (v)		B.	
Smith, M. Prof. (1)	F. 2.30-3.30	409 L.	168 W. 73
Snelling, G. T. Instr. (7)		602 H.	56 W. 33
Sondern, F. E. Clin. Asst. (15)		V. C.	
Speranza, C. L. Adj. Prof. (4)	M. W. F. 10-11.30 Tu. Th. 1.30-2.30		
Starr, M. A. Prof. (2)		305 W. P. & S.	128 E. 63 22 W. 48
Steese, E. S. Clin. Asst. (15)		V. C.	
Stein, J. B. Clin. Asst. (15)		V. C.	
Stewart, C. C. Tutor (10)		P. & S.	46 W. 64
Stiefel, B. W. Clin. Asst. (15)		V. C.	
Stokes, H. S. Clin. Asst. (15)		V. C.	
Stone, W. S. Instr. (7)		P. & S.	260 W. 57
Strong, C. A. Lect. (13)	Absent on leave		
Strong, O. S. Tutor (10)		612 S.	310 W. 122
Struthers, J. Tutor (9)	M.-F. 10.30- 11.30, 1.30 -2.30	103 H. V. C.	624 E. 136
Sumner, A. E. Clin. Asst. (16)		P. & S.	20 W. 55
Swift, G. M. Instr. (9)			
Taylor, H. O. Lect. (14)	M. W. F. 3.30	511 F. P. & S.	47 W. 43 40 W. 21
Taylor, R. W. Clin. Prof. (5)		V. C.	
Terrell, A. G. Clin. Asst. (16)	M. Tu. Th. F. 4.15-4.30	412 L.	14 Central pk. W.
Terry, C. T. Lect. (13)		P. & S.	33 W. 39
Thacher, J. S. Dem. (6)			
Thomas, C. Prof. (4)	W. F. 10.30 Tu. Th. 11.30-12	310 W.	501 W. 113 600 Madison ave.
Thomas, T. G. Emer. Prof. (16)			720 West End ave.
Todd, H. A. Prof. (3)			
Tombo, R. Tutor (10)	Th. 11.30 F. 10.30	312 W.	2 Ridge pl.
Townsend, F. Asst. (11)	M.-Sat. 9.30-1.30	501 E. V. C.	131 5th ave.
Trenwith, W. D. Clin. Asst. (16)			
Trowbridge, C. C. Tutor (10)	Tu. W. F. Sat. 11.30-12.30	401 F. P. & S.	7 E. 46 110 W. 57
Tucker, E. A. Tutor (9)		421 H.	135 Madison ave.
Tucker, S. A. Tutor (10)			
Tufts, F. L. Tutor (10)	Tu. Th. 10.30-11.30	303 F. P. & S.	310 W. 123 49 W. 38
Tuttle, G. M. Prof. (2)		V. C.	
Tyson, H. H. Clin. Asst. (16)			

NAME	OFFICE HOURS	OFFICE	RESIDENCE
U nderwood, L. M. Prof. (4)	M. Tu. 9.30-11.30	506 S.	59 Morningside ave.
V an Amringe, J. H. Prof. (1)	M. W. 2.30	203 C.	204 W. 44
V an De Water, G. R. Chaplain (v)	Tu. Th. 10.30-12.30	415 W. P. & S.	7 W. 122 1 Madison ave.
V an Gieson, I. T. Instr. (7)	M. W. F. 11.30-1	101 S. P. & S.	244 E. 50 Sloane Matern- ity Hospital
v an Ingen, G. Curator (13)		P. & S.	140 W. 88 New Rochelle
V oorhees, J. D. Instr. (8)			
V osburgh, A. S. Asst. Dem. (6)			
V ulté, H. T. Instr. (3)			
W ade, H. T. Asst. (10)	M.-F.	303 F. P. & S.	149 E. 46 33 E. 33
W alker, J. B., Asst. Instr. (8)	Tu. Th. F. 11.30-12.30	607 H.	130 E. 27
W are, W. R. Prof. (1)	Th. 10.30- 12.30	602 H. 305 S. P. & S.	48 W. 9 40 W. 59 153 E. 56 37 W. 33
W arren, C. P. Tutor (9)			
W arren, G. W. Lect. and Organist (v)			
W atters, L. L. Asst. (12)			
W eir, R. F. Prof. (3)			
W ells, D. C. Asst. (11)	M. Th. 10.30-11.30 W. 2.30-3.30	401 F.	109 Willow st., Bklyn
W ells, J. S. C. Instr. (6)	Daily, after 10	513 H.	125 W. 85
W heeler, J. R. Prof. (4)	F. 10.30	304 C. 307 H.	433 W. 117 334 W. 145
W hitaker, M. C. Tutor (10)	Tu. Th. F. Sat. 9.30-12.30 M. Tu. Th. 1.30-5	210 F. 106 S. P. & S. P. & S. V. C.	39 W. 26 449 Park ave. 126 W. 59 152 W. 57
W hite, T. G. Asst. (11)			
W hitlock, H. P. Asst. (10)			
W hitman, R. Instr. (7)			
W illiams, W. R. Asst. (11)			
W illiamson, E. L. Clin. Asst. (16)			
W ilson, E. B. Prof. (3)	Absent on leave	P. & S.	8 E. 49
W ood, F. C. Asst. (11)		511 F.	5 E. 17
W oodberry, G. E. Prof. (3)	M. F. 2.30		
W oodhull, J. F. Prof. (2)	M. W. F. 2.30-3.30	T.	1161 Amster- dam ave.
W oodward, B. D. Instr. (7)	Absent on leave		
W oodward, R. S. Prof. (3)	M. W. Th. F. 11.30-12.30	406 F.	183 Claremont ave., Montclair
W oolson, I. H. Instr. (7)		308 E.	201 Franklin st., Astoria
Y ohannan, A. Lect. (13)			138 E. 48
Y oung, C. H. Instr. (7)	Tu. 1-1.30 F. 1.30-2.30	306 C. V. C.	312 W. 88
Y oung, J. V. D. Clin. Asst. (16)			

DIRECTORY OF STUDENTS

The italic letter following the name indicates the school in which the student is primarily registered—as follows :

<i>c</i> College	<i>ph</i> School of Philosophy
<i>l</i> School of Law	<i>pl</i> School of Political Science
<i>m</i> School of Medicine	<i>s</i> Schools of Mines, Chemistry, Engineering, and Architecture
<i>p</i> School of Pure Science	

The numbers 1, 2, 3, and 4 preceding these letters indicate the class ; sp, special student ; gr, graduate student in the professional schools.

Details in regard to students of Barnard College and Teachers College will be found on pages 352-361, and 365-373.

Abbe, T. 4 <i>m</i>	489 West End ave.	Alter, J. 2 <i>m</i>	72 E. 93
Abbe, W. 1 <i>l</i>	489 West End ave.	Ambler, N. B. 3 <i>s</i>	344 W. 33
Abbott, T. J. 3 <i>m</i>	28 E. 28	Ames, E. H. 1 <i>m</i>	51 Madison ave., Jersey City
Abell, W. M. <i>pl</i>	120 Broadway	Anderson, J. W. 2 <i>l</i>	564 Henry st., Bklyn
Acken, G. A. 4 <i>c</i>	Demarest, N. J.	Anderson, R. P. 4 <i>s</i>	84th st., near 20th ave., Bklyn
Ackerman, W. A. <i>ph</i>	280 W. 115	Anderson, R. W. K. 1 <i>l</i>	119 W. 47
Acton, H. W. 2 <i>s</i>	82 W. 132	Andrews, B. F. 1 <i>m</i>	352 W. 55
Adams, A. B. 3 <i>l</i>	352 W. 115	Andrews, B. F. 1 <i>l</i>	20 E. 42
Adams, C. B. 3 <i>m</i>	400 W. 57	Anspacher, L. K. <i>ph</i>	77 E. 116
Adams, H. W., Jr. 2 <i>l</i>	18 W. 102	Antony, C. L. 4 <i>m</i>	220 E. 123
Adams, J. K. 1 <i>m</i>	143 W. 61	Aplington, H. W. 1 <i>s</i>	143 W. 85
Addoms, L. P. 4 <i>m</i>	270 McDonough st., Bklyn	Appel, H. N. 4 <i>m</i>	451 Liberty ave., Bklyn
Addy, A. R. 4 <i>m</i>	300 W. 70	Appleton, F. <i>pl</i>	Fordham Heights
Adelsohn, J. 2 <i>m</i>	88 E. 108	Arens, M. 1 <i>l</i>	209 50th st., So. Bklyn
Adelson, L. S. 1 <i>l</i>	232 E. 68	Armstead, D. M. 1 <i>s</i>	57 W. 75
Adenaw, A. P. F. 1 <i>s</i>	116 E. 26	Armstrong, D. 2 <i>c</i>	Rahway
Adler, H. C. 1 <i>c</i>	114 W. 77	Armstrong, H. 2 <i>s</i>	227 W. 122
Adler, H. M. 2 <i>m</i>	12 E. 60	Armstrong, H. W. sp <i>pl</i>	175 9th ave.
Adler, M. S. 3 <i>m</i>	149 Orchard st.	Armstrong, L. E. 1 <i>l</i>	1270 Amsterdam ave.
Agatstein, S. 3 <i>m</i>	108 E. 90	Armstrong, W. B. 4 <i>m</i>	149 W. 70
Albright, F. <i>ph</i>	Roselle	Arnegard, K. 2 <i>l</i>	310 W. 123
Alexander, A. J. A. 2 <i>m</i>	145 W. 61	Arnold, H. N. 3 <i>l</i>	101 W. 78
Alexander, D. E. 3 <i>m</i>	51 E. 127	Aronson, D. A. 1 <i>l</i>	43 E. 75
Allan, A. R. sp <i>c</i>	Montclair	Aronson, E. A. 4 <i>m</i>	241 E. 116
Allée, W. H., Jr. 4 <i>m</i>	318 W. 57	Aronson, J. 1 <i>l</i>	241 E. 116
Allen, A. sp <i>ph</i>	Carnegie Hall, 7th ave., 56th st.	Asch, J. J. 1 <i>m</i>	780 Lexington ave.
Allen, J. R. sp <i>s</i>	912 West End ave.	Ashley, D. D. sp <i>m</i>	256 W. 91
Allen, W. K. 2 <i>l</i>	10 E. 115	Ashley, R. E. 1 <i>s</i>	322 W. 113
Allen, W. T. 3 <i>m</i>	154 Lorimer st., Bklyn	Atkins, G. C. 1 <i>c</i>	93 1st st., Bayonne
Alsberg, C. L. 3 <i>m</i>	40 W. 94	Averill, F. C. 1 <i>l</i>	304 W. 115
Alsberg, H. G. 3 <i>c</i>	521 W. 142		
Alsberg, J. 2 <i>s</i>	521 W. 142		

Averill, M. K. 1 *l* 7 W. 120
Aylmer-Small, C. S. 4 *s* Passaic Bridge

Back, W. F. 3 *l* 759 Metropolitan ave., Bklyn

Bacon, R. 3 *l*

Badley, B. T. *ph* 53 W. 112

Baer, S. H. *sp p* 158 Chambers st.

Baff, M. 1 *m* 96 Wallace st., Newark

Bailey, F. R. *sp m*

Bailey, J. McC. 2 *l* 19 W. 46

Bailey, T. 4 *m* 118 W. 74

Bainton, J. H. 2 *m* 75 W. 68

Baird, A. W. 3 *m* 239 W. 70

Baker, C. A. 4 *c* 294 Manhattan ave.

Baker, C. F. 1 *m* 250 Mulberry st., Newark

Baker, E. B. G. 2 *l* 59 Morningside ave.

Baker, E. W. 2 *c* 119 W. 121

Baker, J. L. 2 *m* 699 Putnam ave., Bklyn

Baker, L. B. 1 *l* 438 Manhattan ave.

Ballerstein, R. 1 *l* 211 W. 134

Ballin, M. J. 3 *m* 73 E. 91

Bamberger, E. *sp s* 176 W. 126

Bancroft, J. 1 *c* 147 W. 91

Bandler, L. 3 *m* 140 E. 71

Banker, H. J. *p* 264 W. 127

Banta, E. W. 3 *m* 157 W. 14

Barclay, H. 4 *m* 37 W. 46

Barcus, J. S. 3 *l* 697 West End ave.

Bard, E. R. 2 *s* 273 W. 11

Bard, H. E. *sp ph* 41 E. 69

Bard, S. W. 2 *s* 273 W. 11

Barker, S. 2 *c* 339 W. 71

Barkley, C. B. 2 *l* 44 E. 69

Barlow, E. S. 3 *s* 843 Park pl., Bklyn

Barnard, E. L. 2 *l* 20 W. 130

Barnes, G. E. 4 *m*

Barnett, E. L. 4 *m* 128 W. 61

Barrell, A. C. 2d, 1 *m*

Barrett, H. H. 1 *m* 216 W. 83

Barry, T. J. 4 *m* 137 E. 49

Bartberger, E. W. 2 *s* 483 Manhattan ave.

Bartlett, F. H. *ph* 213 W. 85

Barton, B. G. 1 *m*

Barton, F. W. 2 *m* 136 W. 64

Bartow, C. W. 1 *c* Astoria

Bassett, J., Jr. 1 *c* 58 Morningside ave.

Bastedo, W. A. 4 *m* 121 W. 61

Bates, L. W. 3 *s* 419 W. 117

Bateson, C. E. W. 1 *s* 257 W. 88

Bateson, R. H. *sp c* 257 W. 88

Bauer, G. N. *p* 218 W. 123

Baum, J. M. 2 *l* 326 E. 50

Bauman, L. 2 *m* 342 8th st.

Baumann, A. P. 4 *s* 228 E. 52

Baumgarten, C. 1 *s* 312 E. 70

Baxter, F. E. 2 *c* Point Pleasant

Baxter, W. P. 2 *l* 237 W. 76

Bayles, E. A. 3 *l* 604 W. 114

Bayles, H. *sp m* White Plains

Bayne, H. 2 *s* Riverside dr., 108th st.

Beach, R. M. 1 *m* 434 6th st., Bklyn

Beadel, G. W. *sp s* New Brighton

Beebe, E. L. 3 *m* 447 W. 57

Beck, E. C. A. 1 *m* 37 E. 31

Beck, O. C. 4 *s* 45 St. Mark's pl.

Becker, C. L. *pl* 137 W. 103

Becker, L. 3 *l* 506 W. 157

Becket, F. M. *gr s* 47 E. 21

Beebe, C. W. *sp p* East Orange

Beer, E. 4 *m* 38 W. 77

Belcher, H. J. B. 1 *m* Paterson

Bell, C. F. 3 *s* 1204 Boston road

Bell, H. W. 1 *m* 112 E. 64

Benedict, A. C. 2 *m* 86 Convent ave.

Benedict, E. 2 *s* 86 Convent ave.

Benedict, E. S. 3 *l* 14 E. 70

Benedict, J. D. 3 *l* 352 W. 115

Benjamin, W., Jr. *sp m* 1053 Park ave.

Bennett, H. W. N. 1 *m* 145 W. 61

Bennett, R. S. 4 *m*

Bennett, W. C. 1 *l* 419 W. 117

Bensel, W. A. 2 *c* 111 W. 126

Bentz, G. H. 1 *m* 309 E. 86

Berger, J. 4 *s* 342 E. 4

Bernheim, G. B. 2 *s* 74 E. 79

Bernstein, E. P. 3 *m* 227 E. 116

Betowski, L. S. 1 *m* 139 W. 61

Beveridge, J. W. 2 *m* New Rochelle

Bewer, J. A. *ph* 208 E. 74

Bieber, J. 3 *m* 113 Cannon st.

Bigelow, R. 2 *s* 56 W. 54

Bigham, H. J. 3 *l* 1240 Lexington ave.

Bill, P. W. 2 *m* 318 W. 57

Bing, A. M. 2 *l* 21 W. 88

Bingham, A. W. 3 *m* 129 W. 48

Bingham, L. M. 3 *c* 73 W. 92

Birkhead, H. McC. 4 *c* 133 E. 21

Birkhead, J. 4 *m* 133 E. 21

Bissell, C. S. 1 *l* 369 W. 119

Bissell, P. 2 *m* 115 W. 49

Bissell, P. R. 1 *s*

342 S. 4th ave., Mt. Vernon

Black, J. F. J. 3 *m* 318 W. 57

Blackford, U. G. 2 *l* 306 W. 104

Blair, E. 2 *s* 491 Manhattan ave.

Bleick, T. E. 4 *m* 431 W. 57

Bliss, R. F. 2 *m*

233 Cumberland st., Bklyn

Block, S. J. 3 *c* 86 E. 111

Blondel, T., Jr. 3 *s* 548 Mott ave.

Blue, J. H. 2 *m* 117 W. 64

- Blum, E. 3 s 1024 Park ave.
 Blumenthal, E. 1 l 20 W. 72
 Blumenthal, J. L. 3 m 1204 E. 167
 Boardman, A. H. 1 c 417 W. 117
 Boardman, F. sp s Nutley
 Bodkin, D. G. 4 m 999 De Kalb ave., Bklyn
 Boehm, A. A. 2 c 41 W. 89
 Boese, W. H. 2 c 66 North st., New Rochelle
 Bogue, M. G. 3 c 836 Union st., Bklyn
 Bohm, O. H. 2 m 979 8th ave.
 Bolduan, C. F. 2 m 226 Glenmore ave., Bklyn
 Bolte, H. A. 3 l Bedford Park
 Bonnell, C. H. sp m 114 W. 61
 Bonsall, V. F. M. 2 c 160 W. 95
 Bookman, A. 2 m 9 E. 62
 Boone, E. W. 2 c 530 W. 123
 Boote, C. W. 3 l 128 Webster ave., Yonkers
 Booth, F. H. 1 m 346 W. 58
 Borden, W. H., Jr. 1 s 1 W. 102
 Bordwell, W. P. pl 203 W. 106
 Boroschek, L. 2 s 149 E. 56
 Bos, G. 2 s 106 W. 134
 Bosse, K. K. ph 158 Waverly pl.
 Botty, G. M. 1 l 319 E. 86
 Bouton, A. L. sp ph Gould Hall, University Heights
 Bowman, G. S. pl 49 W. 21
 Bowman, H. H. 4 c Montclair
 Bowman, J. F. 3 c Montclair
 Bowne, S. W. 2 c 211 Berkeley pl., Bklyn
 Boyd, A. S. 4 m 337 W. 58
 Boyd, J. D. 4 s 308 W. 73
 Boyesen, H. H. 2d, 3 c 614 W. 113
 Bracker, M. H. 1 m 97 2d ave.
 Bradley, A. 1 m Sing Sing
 Bradley, A. B. A. 1 c 304 W. 83
 Bradley, J. A. 1 s 2053 7th ave.
 Bradley, W. A. 4 c 187 Lenox ave.
 Bradner, F. C. 4 m 129 Lexington ave.
 Bradshaw, P. H. 1 l Orange
 Brady, F. L. 4 m 10 W. 64
 Brandeis, J. W. 4 m 113 E. 122
 Brandon, V. I. 2 s 40 W. 89
 Brandt, O. R. 3 l Kingsbridge
 Brater, A. W. sp p 76th st., Park ave.
 Braun, A. 1 m 121 E. 112
 Breckwedel, H. B. 3 m 315 W. 48
 Bremer, A. M. 2 l 69 E. 86
 Breneman, H. C. 1 s 417 W. 117
 Brennan, J. W. p 2066 Western Boulevard
 Brewster, G. F. sp m 353 W. 30
 Bridge, G. A. 1 m
 Briesen, H. 1 s Weehawken
 Briggs, H. A. pl 41 E. 69
 Briggs, H. S. sp ph 7 W. 65
 Briggs, W. P. 3 s 2301 7th ave.
 Brill, A. 2 m 54 Lewis st.
 Brill, J. 1 l 33 Palmetto st., Bklyn
 Brimmer, G. E. 1 l
 Brinsmade, D. B. 3 m
 Britenstool, H. 2 m 214 E. 50
 Britt, A. pl 137 W. 103
 Brittingham, A. DeW. 1 s 133 E. Lincoln ave., Mt. Vernon
 Britton, H. B. 2 s 255 W. 75
 Brodie, O. L. 2 s 483 Manhattan ave.
 Brooke, W. W. 3 m 915 Ave. C, Bayonne
 Brooks, F. H. ph 122 W. 103
 Brooks, R. H. 3 c 362 W. 118
 Bross, W. W. 4 c Montclair
 Brower, F. D. 2 c 109th st., Riverside dr.
 Brown, A. McD. 1 c 354 Manhattan ave.
 Brown, C. 1 s 301 W. 77
 Brown, E. L. 1 s 614 W. 152
 Brown, H. A. 3 s 314 W. 115
 Brown, S. 1 s 301 W. 77
 Brown, S. 1 m 143 W. 61
 Brown, T. E. W. 3 m
 Bruce, E. B. sp c Yonkers
 Brueninghausen, H. W. 2 c 799 Carroll st., Bklyn
 Bryan, R. C. 4 m 137 W. 64
 Bryant, R. R. 2 m 143 W. 61
 Brydges, R. L. ph Islip
 Buchholz, G. W. 2 s 263 W. 88
 Buchler, W. P. 2 c 70 W. 119
 Buchtel, F. C. 2 m East Orange
 Buckley, W. A. sp m 117 E. 28
 Budds, B. C. 1 s 54 W. 100
 Budington, E. G. 1 c 275 Clinton ave., Bklyn
 Buerger, L. 2 m 164 W. 133
 Buffington, R. E. 2 m Short Hills
 Bühler, J. S. 2 c
 Buitrago, R. D. sp s 316 W. 58
 Bulkley, H. D. 2 c 4 E. 37
 Bulkley, L. C. 2 m 4 E. 37
 Bullard, O. 1 c
 Bullwinkle, F. 4 m 133 Franklin ave., Bklyn
 Burdick, H. H. sp c 366 W. 118
 Burke, E. ph 220 E. 49
 Burke, W. M. pl 323 W. 124
 Burlingame, F. A. 2 l 22 E. 78
 Burns, D. J. 3 s 423 W. 117
 Burnside, C. H. p 483 Manhattan ave.
 Burt, H. R. 2 s 59 W. 52
 Busck, G. J. 1 m 28 E. 20
 Bush, W. 1 l

- Bussmann, A. H. 1 s
186 Chestnut st., Bklyn
- Butts, A. C., Jr. 1 m 1004 Trinity ave.
- Byers, R. T. 1 l
- Byington, R., Jr. 3 m 150 W. 66
- Byron, T. P. 3 c Hotel Manhattan
- C**abot, J., Jr. 4 s 126 W. 48
- Cairns, B. S. 4 s 40 Grove
- Cairns, D. W. 2 m 40 Grove
- Caldwell, A. sp c 2049 7th ave.
- Callan, H. A. 1 m 35 W. 38
- Camerer, E. E. pl 60 W. 93
- Cameron, W. S. 2 s 239 W. 136
- Campbell, G., Jr. sp p Irvington
- Campbell, H. 4 m 114 W. 80
- Cane, M. H. 3 c 62 E. 80
- Capen, E. W. pl 700 West End ave.
- Cardozo, E. A. 4 c 45 E. 65
- Cardozo, M. H., Jr. 2 c 45 E. 65
- Carey, R. W. 1 c 204 W. 78
- Carhart, G. A. 4 m 346 W. 58
- Carrick, M. 1 s 143 W. 80
- Carpender, J. N., Jr. 2 m 341 W. 55
- Carpenter, H. C. 4 s 113 E. 69
- Carr, S. D. 2 l 417 W. 117
- Carrington, W. 1 s
801 High st., Newark
- Carruthers, L. J. 3 l
950 Marcy ave., Bklyn
- Carter, J. P. 1 c 130 E. 24
- Cary, J. W. 1 s 322 W. 113
- Casamajor, W. 4 s
372 Greene ave., Bklyn
- Case, G. D. sp s 500 W. 123
- Cassard, W. J., Jr. 2 s 139 W. 70
- Cassebeer, H. A. 3 m 1 W. 68
- Cauthers, J. B. 3 l 857 Lexington ave.
- Celler, H. L. 3 m 61 W. 94
- Chancellor, C. H. 1 m
720 St. Nicholas ave.
- Chapman, H. 3 s 369 W. 120
- Chase, J. H. pl 50 E. 70
- Chase, L. N. ph 520 W. 123
- Cherouny, A. E. 1 c 696 E. 135
- Cherry, W. S. 4 m 244 W. 71
- Chibas, L. F. S. 1 m 139 W. 43
- Chollet, C. ph 169 W. 91
- Christmann, A., Jr. 1 l
113 Graham ave., Bklyn
- Cimiotti, W. F. 2 m 104 W. 87
- Clapp, W. N. 3 c Hempstead
- Clark, A. S. 4 m 137 W. 64
- Clark, F. M. 1 c Netherwood
- Clark, H., Jr. 3 c 318 W. 82
- Clark, J. B. sp m Elizabeth
- Clark, T. 2 s 1283 Columbus ave.
- Clark, W. G. 4 s 37 E. 50
- Clark, W. I., Jr. 3 c 127 E. 30
- Clark, W. L. 2 s 37 W. 84
- Clarke, H. J. B. 1 s 19 E. 9
- Clarke, R. W. M. 1 s 19 E. 9
- Clarke, W. C. 4 m Tenafly
- Clarke, W. J. 3 l 148 E. 45
- Clinch, E. S., Jr. 3 s 133 W. 121
- Close, J. A. 1 s Stamford
- Coan, P. 3 c 67 E. 54
- Cobb, W. B. 2 l 360 W. 120
- Cochran, G. H. 3 m 101 W. 73
- Cochrane, F. L. 3 m
704 Sterling pl., Bklyn.
- Coe, J. L. sp c Bay Shore
- Coerr, F. D. H. 3 c
472 Mt. Hope pl., Tremont
- Coffee, K. I. 3 c 736 Lexington ave.
- Cogan, H. M. 4 s Bay Ridge
- Cohen, I. 1 l 456 Grand st.
- Cohen, M. 1 l 310 W. 33
- Cohn, A. E. 3 c 64 E. 66
- Cohn, H. 2 m
22 E. Kinney st., Newark
- Cohn, I. 1 m 154 Henry st.
- Cohn, L. A. 1 c 64 E. 66
- Cole, R. J. 4 c 25 Howe ave., Passaic
- Colie, E. M., Jr. 1 c East Orange
- Collins, W. M. sp c 330 W. 108
- Colman, J. M. 1 s 600 W. 114
- Colt, M. 2 s 90 Clinton pl.
- Colton, W. N. pl 417 E. 13
- Colwell, L. M. 2 s 365 W. 27
- Comey, J. W. 1 l 74 W. 54
- Compton, A. D. sp ph 40 W. 126
- Conant, R. L. ph
423 Third st., Bklyn
- Condit, J. D. 2 m 415 W. 57
- Conklin, D. B. 1 m 50 W. 65
- Connell, K. A. 3 m 147 W. 43
- Connolly, C. P. pl 41 E. 69
- Conville, J. J. 3 l 145 E. 45
- Cook, A. E. 1 m 447 14th st., Bklyn
- Cooke, A. S. 2 m 350 W. 56
- Cooley, L. C., Jr. pl 41 E. 69
- Corbin, J. 3 l 402 W. 124
- Cornell, R. T. 1 s 67 W. 83
- Corning, W. B. 4 c
888 St. Nicholas ave.
- Corrigan, H. J. C. 1 m
- Corrigan, J. E. 1 l 890 Boulevard
- Corse, A. W. 2 l 129 W. 94
- Cortright, C. B. 1 m
158 Plane st., Newark
- Corwin, N. S. 2 l 417 W. 117
- Costello, R. R. 3 l 129 E. 71
- Coult, J. V., Jr. sp c
58 Mt. Pleasant ave., Newark
- Coultas, A. B. 1 m 415 W. 57
- Covert, J. B. 1 m 161 W. 64
- Cowen, H. G. 1 c 130 E. 47

- Cowen, T. B. 3 *l* 14 E. 53
 Cowing, P. F. 1 *s* 138 E. 78
 Cowperthwait, F. N. 1 *m* 5 Mt. Morris pk.
 Cox, W. N. 2 *l* 125 W. 127
 Coykendall, F. 2 *s* Hotel Marie Antoinette
 Cram, G. E. 2 *m* 318 W. 57
 Crampton, C. W. 3 *m* 133 W. 123
 Crane, C. G. 3 *m* 25 W. 23
 Crawford, H. E. 4 *s* 220 W. 28
 Crawford, W. B. 4 *m* 231 W. 71
 Creeden, E. L. 2 *m* 232 E. 18
 Cregier, A. M. 1 *s* Mt. Vernon
 Crissey, C. P. 1 *s* 134 W. 79
 Cromwell, R. H. 1 *s* 225 Quincy st., Bklyn
 Cronin, W. 3 *m* 133 W. 64
 Crosby, H. B., Jr. 1 *s* 417 W. 117
 Cross, F. B. 3 *m* 6 W. 66
 Cummings, J. J. 4 *m*
 Cummins, A. G., Jr. sp *l* 70 Lenox ave.
 Curran, J. D. 2 *m* 337 W. 57
 Curran, P. J. 2 *m*
 Curry, R. 3 *s* New Brighton
 Curtis, B. R. 1 *l* 30 E. 64
 Curtis, E. D. 1 *l* 9 E. 54
 Curtiss, A. L. 3 *l* 24 W. 49
 Cushing, E. W. 2 *l* 227 W. 122

 Dalton, W. A. 1 *m* 988 E. 175
 Dana, C. A. 1 *c* 55 W. 51
 Danforth, E. 1 *m* Hotel Endicott
 Daniels, H. P. 1 *s* 73 E. 127
 Danton, G. H. 1 *c* Lyndhurst
 Danziger, J. L. 1 *s* 2549 8th ave.
 Darling, E. F. 3 *m* 224 W. 58
 Darrach, W. 2 *m* 317 W. 58
 Davenport, F. M. *pl* 1986 Madison ave.
 Davidson, J. M. 4 *m* 507 Clinton st., Bklyn
 Davis, B. sp *p* 904 Lexington ave.
 Davis, F., Jr. 4 *m* 57 W. 48
 Davis, J. W. 1 *m*
 Davis, M. M., Jr. 3 *c* 203 W. 117
 Day, A. W. 2 *m* 140 52d st., Bklyn
 Day, S. S. 1 *m* 264 W. 57
 Deane, S. 4 *c* 40 W. 59
 Dearborn, G. V. *ph* 500 W. 123
 de Beaumont, V. E. 2 *c* 723 Columbus ave.
 de Castro, R., Jr. 2 *m*
 Deely, G. E. 3 *m* 121 W. 61
 de Forest, H. L. 2 *l* 7 Washington sq.
 de Forest, J. 3 *l* 7 Washington sq.
 Deignan, J. H. 3 *l* 117 W. 114
 de Kay, S. G. sp *c* 50 W. 9
 de la Feunte, J. 3 *s* 56 Morningside ave.
 Delgado, F. P. 2 *c* 328 W. 57
 De Long, F. S. 2 *m* 47 W. 49
 Delson, I. 4 *s* 203 E. 69
 de Mille, W. C. 3 *s* 56 Morningside Park
 Deming, D. B. 2 *m* 110 Madison ave.
 Deming, S. C. 3 *l* 843 West End ave.
 Dempewolf, A. F. 3 *m* 11 Manhattan st.
 Denbigh, J. H. sp *ph* 852 E. 163
 Denison, R. F. 2 *l* 417 W. 117
 Dennis, A. L. P. *pl* 301 Lexington ave.
 Denzer, S. W. 4 *c* 113 W. 130
 Depew, C. M., Jr. 2 *c* 43 W. 54
 de Peyster, F. A. 2 *c* 7 E. 42
 Deutsch, S. 1 *m* 534 E. 87
 De Witt, W. A. 3 *c* 133 W. 78
 de Young, A. B. 1 *l* 125 W. 77
 d'Hauteville, P. A. G. sp *s* Knickerbocker Club
 Diamant, S. 1 *s* 245 E. 118
 Dickerson, F. S. 4 *s* Great Neck
 Dickerson, H. 1 *s* Great Neck
 Dickie, A. E. 1 *s* 566 Macon st., Bklyn
 Dickinson, H. T. 1 *s* 212 W. 80
 Dieterich, A. E. 4 *s* 963 5th ave.
 Dike, F. H. *ph* 640 W. 149
 Dill, H. T. sp *s* 256 W. 128
 Dillenberg, J. S. 4 *m* 325 E. 62
 Dillon, C. J. 1 *m* 118 W. 47
 Dionne, G. A. L. sp *ph* 20 W. 44
 Ditman, N. E. 3 *m* 330 W. 58
 Dixon, J. 2 *s* Flushing
 Dixon, S. H. 3 *c* Railroad ave., Unionport
 Dixon, W. H. 3 *c* 29 W. 49
 Dodd, E. L. 3 *m* 196 Clinton ave., Newark
 Doggett, W. H. sp *ph* 41 E. 69
 Doherty, C. J. 1 *l* 735 Lexington ave.
 Dollard, H. L. 1 *m* Oyster Bay
 Dominick, W. F. 1 *s* 35 E. 57
 Donald, D. 1 *m*
 Donnellan, G. L. 2 *c* 883 6th ave.
 Donohue, F. B. 3 *m* 253 Main st., Paterson
 Donovan, P. G. 4 *m* 509 W. 59
 Doob, I. E. 2 *l* 44 W. 73
 Doolittle, W. F. 1 *m* 145 W. 61
 Doon, J. H. 1 *m* 424 W. 57
 Dorman, H. G. 3 *m* 318 W. 57
 Dosh, L. P. 1 *m* 1667 Washington ave.
 Doud, C. H. 2 *s* 65 Morningside ave.
 Dougherty, R. E. 2 *s* 244 W. 20
 Doughty, W. H., Jr. 1 *l* 43 E. 30
 Douglas, R. G. D. 1 *l* Orange
 Downer, C. A. *ph* 141 E. 19

Downs, A. S. 4 *m* 149 W. 70
 Drew, J. B. 2 *l* 363 Manhattan ave.
 Driscoll, D. M. 3 *m* 143 W. 61
 Dryfoos, A. D. 4 *m* 22 W. 69
 Du Bois, W. C. 1 *s* 35 W. 34. Bayonne
 Duden, F. H. 1 *c* Bronxville
 Duden, H. 2 *c*
 P. O. Box 48, Bronxville
 Duden, W. 3 *c*
 P. O. Box 48, Bronxville
 Dudley, W. L. sp *m* 103 W. 42
 Duff, W. A. gr *s* 47 E. 21
 Duffield, F. 3 *m* 28 E. 28
 Duffield, R. F. 3 *c* Hollis, L. I.
 Dufourcq, R. G. 1 *c* 62 W. 84
 Duggan, S. P. *pl* 533 Lexington ave.
 Duncan, G. E. 1 *l* 202 W. 36
 Duncan, O. B. 2 *m*
 202 Carroll st., Paterson
 Dunseith, J. G. 2 *m* 354 W. 42
 Durham, K. 2 *c* 162 W. 27
 Durham, L. 4 *s* 162 W. 27
 Durham, R. 3 *c* 162 W. 27
 Dusenbury, A. N. 2 *s* The Beresford
 Duval, H. R. sp *c* 26 W. 21
 Du Vivier, J. sp *c* 441 W. 21
 Dwyer, J. W. 3 *m* Garfield, N. J.
 Dyke, C. B. *ph* 24 W. 45
 Eakins, O. M. 4 *m* Paterson
 Eastmond, C. 2 *c*
 199 Madison st., Bklyn
 Eaton, A. R., Jr. 1 *m*
 1141 E. Jersey st., Elizabeth
 Eccles, D. C. 3 *s* 191 Dean st., Bklyn
 Echarte y Martos, E. 2 *m* 167 W. 64
 Eckerson, C. H. *ph* Closter, N. J.
 Edgerton, C. E. *pl* 131 E. 112
 Edwards, C. H. 2 *l* Greenwich
 Edwards, E. J., Jr. 2 *c* Greenwich
 Edwards, J. A. 3 *c* 144 W. 58
 Edwards, W. S. sp *ph* East Orange
 Eggena, G. 4 *c* New Brighton
 Ehrenreich, J. J. 4 *s* 48 E. 74
 Ehret, G., Jr. 4 *c* 1197 Park ave.
 Ehrmann, A. 1 *c* 11 W. 58
 Einstein, L. *ph* 39 W. 57
 Eldert, H. C. 4 *c* 233 W. 120
 Eldridge, G. D., Jr. 3 *l*
 Palisade ave., Riverdale
 Ellard, C. H. sp *ph*
 Ellenbogen, J. K. 2 *l* 304 W. 115
 Eller, F. W. 1 *s* 243 E. 118
 Elliman, K. B. 2 *c* Flushing
 Elliott, R. H. 2 *s* 310 W. 113
 Ellison, M. H. 3 *l* 48 E. 87
 Ellison, M. H. 3 *l* 1893 Madison ave.
 Elmer, C. H. 3 *c* 189 Lenox ave.
 Elmore, W. B. 3 *c* 100 W. 109

Emerson, H. 4 *m* 81 Madison ave.
 Engel, W. F. 2 *m*
 10 Stuyvesant ave., Bklyn
 Engelke, C. 1 *m*
 Enteen, J. sp *c* 266 Henry st.
 Entz, G. G. 2 *s* 24 E. 83
 Epstein, A. A. 1 *c* 100 E. 89
 Erdal, O. W. 2 *s* 369 W. 120
 Erdman, S. 1 *m* Morristown
 Ernst, A. O. 2 *c* 217 W. 120
 Ernst, B. M. L. 4 *c* 233 W. 113
 Erskine, J. 3 *c* Weehawken
 Erving, S. 1 *c* 11 W. 35
 Eskesen, L. B. sp *s* 500 W. 122
 Esser, J. H. 2 *c*
 209 Sidney ave., Mt. Vernon
 Estill, R. J. 1 *m* 129 W. 61
 Evalenko, W. A. 1 *s* 108 E. 101
 Evans, A. P. 1 *m*
 755 Quincy st., Bklyn
 Evans, J. H. 1 *m* 100 W. 61
 Evans, M. D. sp *c* 177 W. 79
 Everitt, C. V. 3 *m*
 38 Boyd ave., Jersey City
 Eyanson, F. E. 1 *l*
 Eyer, G. A. sp *ph* 255 W. 122
 Fachenthal, J. D. 3 *c*
 93 Rodney st., Bklyn
 Fahnestock, C. 3 *m* 457 Madison ave.
 Fahnestock, E. 3 *m* 457 Madison ave.
 Faile, K. C. 1 *c* 53 W. 49
 Faile, M. B. 1 *s* 53 W. 49
 Falck, A. 3 *l* 29 E. 132
 Falconer, B. McL. 2 *c* 8 E. 62
 Falk, K. G. 2 *s* 995 Madison ave.
 Falk, M. S. 4 *s* 995 Madison ave.
 Farish, G. E. 1 *s* 56 W. 39
 Farnham, W. S. 1 *l* 261 W. 121
 Farnsworth, P. T., Jr. 3 *l* 222 W. 114
 Farrell, L. F. 1 *m*
 Fay, C. J. 3 *l* 146 W. 104
 Fechheimer, A. L. 4 *s* 57 W. 56
 Feldman, M. 3 *s* Fort Wadsworth
 Felsenheld, S. 1 *c* 164 W. 86
 Fendrich, A. E. 3 *m*
 Highwood Park, N. J.
 Ferguson, D. J. 1 *l*
 Ferguson, S. 4 *s* 202 W. 103
 Fetzner, L. T. 1 *l* 240 Lenox ave.
 Feust, A. 1 *s* 718 E. 138
 Fewsmith, J. L. 1 *m*
 47 Central ave., Newark
 Fiedler, E. C., Jr. sp *pl* 60 W. 39
 Field, F. P. 1 *m* 318 W. 57
 Finney, A. H. 3 *l* 519 W. 123
 Finnigan, J. J. 3 *c*
 108 Amsterdam ave.
 Firth, E. W. *ph* 473 14th st., Bklyn

- Fischer, S. M. 1 *l* 152 E. 81
 Fishel, L. 2 *l* 435 W. 147
 Fisher, A. T. sp *m* 469 9th st., Bklyn
 Fisher, H. 4 *s* 108 E. 70
 Fisher, R. M. 2 *s* Mount Vernon
 Fisk, C. E. 1 *c* 17 Bentley ave., Jersey City
 Fiske, W. M. L., Jr. 3 *c* 484 Bedford ave., Bklyn
 Fitch, C. W. 4 *m* 40 W. 65
 Fitch, J. K. 1 *c* 608 W. 113
 Fitz-Gerald, A. B. 1 *m* 57 Liberty st., Newark
 Flagler, H. H. sp *ph* 51 Park ave.
 Flanagan, E. J. 3 *l* 388 Sackett st., Bklyn
 Fleischmann, C. R. 3 *l* 10 E. 73
 Fleischmann, E. H. 3 *l* 1523 Madison ave.
 Fletcher, N. DeL. L. 4 *c* 180 E. 93
 Fliess, R. A. 4 *s* 201 W. 55
 Flood, G. J. B. 2 *m* 108 W. 63
 Floyd, C. W. 1 *l*
 Floyd, R. 4 *m* 36 W. 68
 Fochrenbach, H. P. 2 *m* 359 W. Boulevard
 Foote, S. K. 4 *m* 243 W. 99
 Forbes, C. S. 2 *c* 133 E. 29
 Ford, H. C. 3 *s* 310 W. 18
 Ford, H. E. 1 *c* West New Brighton
 Forsch, A. 2 *c* 31 W. 86
 Fort, G. P. 4 *c* 233 W. 120
 Foster, B. F. 1 *l* 11 E. 84
 Foster, O. R. 3 *s* 377 Quincy st., Bklyn
 Fowler, A. A. 4 *c* 60 E. 68
 Fowler, C. H. 3 *l* 141 W. 122
 Fowler, E. P. 3 *m* 18 E. 58
 Fowler, L. H. 1 *s* 280 Amsterdam ave.
 Fowler, S. R. 1 *m* 165 W. 64
 Fowler, W. W. *ph* 1270 Amsterdam ave.
 Fox, H. K. *pl* 41 E. 69
 Fox, J. C. 1 *m* 123 Brooklyn ave., Bklyn
 Fox, R. C. 1 *l* 174 W. 126
 France, M. J. 3 *c* 933 Kent ave., Bklyn
 Frank, A. A. 4 *s* 308 W. 90
 Frank, M. L. 2 *c* 48 E. 80
 Frank, R. T. 3 *m* 17 E. 61
 Frankel, J. D. 1 *s* 104 E. 81
 Fraser, J. H. 1 *c* 39 W. 68
 Frazer, H. T. 2 *m* 1028 Broad st., Newark
 French, C. H. sp *pl* 41 E. 69
 Frentzel, L. H. W. sp *m* Passaic
 Freund, H. P. 1 *s* 796 Lexington ave.
 Freund, J., Jr. sp *s* Hastings
 Friedland, M. 1 *c* 417 E. 86
 Friedmann, J. L. 3 *l* 109 E. 78
 Frierson, J. N. 3 *l* 175 W. 73
 Frink, C. A. 1 *m* 129 W. 61
 Frissell, L. F. 3 *m* 125 W. 47
 Frost, F. L., Jr. sp *ph* 175 9th ave.
 Frost, H. R. 3 *l* 133 W. 103
 Fry, W. H. *pl* 319 9th st., Bklyn
 Füger, A. S. 1 *s* Governor's Island
 Fuhrmann, K. sp *c* 136 W. 120
 Fulda, C. 2 *m* 107 Kent st., Bklyn
 Fuller, C. 1 *l* 30 Washington sq.
 Fulton, J. A. 2 *s* 363 Manhattan ave.
 Funk, J. A. 3 *m* 447 W. 57
 Furman, R. 3 *c* 47 W. 19
 Furnald, R. B. 1 *c* 18 W. 46
 Futter, L. N. sp *c* 44 Market st.
 Gabriel, C. J. 2 *m* 53 16th ave., Newark
 Galbraith, A. W. 1 *m* 47 W. 63
 Gale, S. S. 2 *m* 117 W. 64
 Gales, W. S. 1 *s* Elizabeth
 Gallatin, A. R. gr *s* 58 W. 55
 Gallatin, F., Jr. 2 *c* 58 W. 55
 Gallatin, G. 3 *c* 670 5th ave.
 Gallatin, J. N. sp *p* 58 W. 55
 Gandy, N. S. sp *pl* 520 W. 123
 Garabedian, H. B. sp *ph* 101 W. 101
 Gardiner, P. P. 3 *c* Garden City
 Gardner, E. W. sp *m* 156 William st.
 Garrigan, G. P. 1 *m* 609 High st., Newark
 Garvey, T. F. 1 *l* 18 Schermerhorn st., Bklyn
 Geiger, F. C., Jr. 1 *c* East Orange
 Gennert, H. 3 *l* The Terrace, Greenville, N. J.
 Gennert, W. O. 3 *l* The Terrace, Greenville, N. J.
 Gentzlinger, C. F. 3 *l* 316 2d ave.
 George, F. S. 4 *m* 119 W. 61
 Germann, G. B. *ph* 6 Convent ave.
 Gerrard, E. A. *ph* 262 W. 121
 Gershel, M. 3 *m* 19 E. 99
 Gerster, J. C. A. 1 *c* 34 E. 75
 Getman, J. E. 4 *m* 341 W. 55
 Geyer, H. C. 3 *m* 78 Second st.
 Gibbs, J. P. 2 *m* 318 W. 57
 Gibbs, W. R. 1 *s* 251 W. 55
 Giddings, H. S. 3 *c* 150 W. 79
 Gieschen, A. H. 3 *m* 46 E. 124
 Giffen, S. D. 1 *m* 121 W. 111
 Giffin, I. 4 *c* 311 Lincoln ave., Orange
 Gilchrist, E. P. 1 *l*
 Giles, J. R. 1 *c* 65 W. 70
 Gillespie, D. H. M. 1 *m* 139 W. 67

Gillette, C. 2 *m* 24 W. 40
 Gilmour, A. J. 4 *m* 139 W. 61
 Gilsey, G. L. 2 *c* 80 Madison ave.
 Glasson, W. H. *pl* 367 Manhattan ave.
 Glenney, W. L. 1 *c* Plainfield
 Godwin, H. 1 *s* 125 W. 122
 Godwin, P. H. 3 *s* 125 W. 122
 Goerwitz, W. 2 *s* 190 3d ave.
 Goff, J. W., Jr. 1 *c* 319 W. 104
 Goldberg, J. M. 1 *m* 157 E. 72
 Goldberg, L. 3 *l* 316 E. 116
 Golden, P. N. 1 *s* Elizabeth
 Goldman, C. 2 *m* 1 Pike st.
 Goldman, M. 1 *s* 151 Bridge st., Bklyn
 Goode, E. L. 2 *s* 314 Jefferson ave., Bklyn
 Goodenough, R. J. 2 *s* 18 7th ave., Bklyn
 Goodfriend, N. 1 *m* 9 Avenue C
 Goodhue, I. W. 1 *l* 76 W. 114
 Goodman, M. 2 *s* 338 E. 4
 Goodman, M. L. 3 *m* 338 E. 4
 Goodrich, J. S. 1 *s* 119 W. 104
 Goodridge, F. G. 2 *m* 250 5th ave.
 Goodwillie, R. H. 2 *s* 154 W. 34
 Gordon, G. A. *ph* 41 E. 69
 Gotthelf, A. H. *ph* Hastings-on-Hudson
 Gottschall, L. sp *ph* 207 E. 53
 Gould, E. W. 4 *m* 539 W. 144
 Gould, G. C. 1 *m* 130 Washington st., Mt. Vernon
 Gould, J. W. 3 *c* 246 14th st., Bklyn
 Gow, R. A. 1 *m* 52 W. 65
 Grace, W. H. 2 *c* 52 E. 79
 Graham, J. F. 3 *m* 129 W. 64
 Grannis, A. *ph* 604 W. 114
 Grannis, P. E. 2 *c* 306 W. 115
 Grant, H. R. 2 *c* 323 W. 83
 Grant, J. E. 3 *m* 208 W. 88
 Grant, U. S. 3d, sp *c* 25 E. 62
 Grausman, P. M. 3 *m*
 Graves, H. C. 4 *c* 278 McDonough st., Bklyn
 Gray, A. W. 4 *m* 346 W. 58
 Gray, C. 1 *s* 255 W. 126
 Gray, H. D. *ph* 352 W. 120
 Gray, J. 2 *c* 246 14th st., Bklyn
 Gray, L. H. *ph* 55 2d ave., Newark
 Green, R. C. 1 *s* Newtown
 Green, S. G. 3 *m* 431 W. 57
 Greenslet, F. *ph* 203 W. 123
 Gregory, G. A. 1 *m* 400 W. 58
 Gregory, W. K. 3 *c* 179 W. 10
 Greil, G. 2 *m* 117 W. 64
 Gretsch, B. J. 2 *m* 334 E. 77
 Griffin, A. B. 2 *m* Hotel San Remo

Griffiths, D. *ph*
 Groezinger, C. sp *pl* 41 E. 69
 Gros, F. 3 *l* 366 W. 118
 Gros, H. E. 3 *l* 366 W. 118
 Grosner, B. A. 3 *l* 1041 Lexington ave.
 Gross, J. C. 4 *m* 1205 Park ave.
 Grossmann, L. 2 *m* 209 E. 106
 Grout, G. H., 2 *m* 165 W. 64
 Guenther, E. A. 1 *m* 35 Morton st., Newark
 Guile, W. A., Jr. 1 *l*
 Gulick, H. de H. sp *c* Astoria
 Gundersen, C. *ph* 400 W. 124
 Gunter, C. 2 *m*
 Guthrie, W. B. *pl* 221 W. 122
 Haas, A. sp *ph* 539 W. 141
 Haas, A. sp *m* 237 W. 135
 Haas, G. C. O. 1 *c* 64 7th st.
 Haas, H. L. 1 *l* 483 West End ave.
 Haber, J., Jr. 1 *l*
 Haber, W. J. 1 *m* 417 W. 117
 Haberman, J. V. 1 *c* 248 E. 61
 Hackett, F. S. 4 *c* 7 W. 107
 Hackett, H. S. 2 *l* Manhattan Hotel
 Hahn, G. H. 1 *m* 122 Newton st., Newark
 Haines, E. I. sp *ph* New Rochelle
 Half, M. L. 1 *l* 16 W. 90
 Hall, C. H. 1 *m* 427 Waverly ave., Bklyn
 Hall, E. J. sp *ph* Passaic
 Hall, H. sp *s* 204 Hancock st., Bklyn
 Hall, H. R. 1 *l*
 Hall, J. H. 2 *l*
 Hall, L. H. 2 *l* 545 W. 125
 Hall, L. W. 1 *l* 151 W. 106
 Hall, M. F. 4 *m* 153 W. 61
 Halsey, C. B. 1 *s* 399 Madison ave.
 Halsey, F. R. 1 *c* 957 Boulevard, Astoria
 Halsey, H. V. 1 *c* 957 Boulevard, Astoria
 Halsey, R. H. 3 *m* 318 W. 57
 Hamann, A. W. sp *l* 529 W. 125
 Hamburger, S. 1 *s* 737 E. 141
 Hamilton, A. 1 *m*
 Hammer, J. 1 *m* 304 Rivington
 Hanan, J. T. 4 *m* 318 W. 57
 Hanemann, J. T. 1 *s* 170 W. 59
 Hanscom, H. C. 3 *m* 143 W. 117
 Hanson, H. O. 2 *c* 622 E. 160
 Hardenbergh, A. 1 *s* 121 W. 73
 Harding, W. H., Jr. 3 *c* 1233 Dean st., Bklyn
 Hargrave, G. E. 3 *l* 281 W. 118
 Harmon, A. L. 1 *s* 361 W. 123
 Harper, J., Jr. 1 *c* 127 E. 28
 Harran, G. P. 1 *m*

- Harrington, H. S. 4 c 366 W. 118
 Harris, H. S. 1 c 114 W. 116
 Harrison, H. S. 3 c 145 Montague st., Bklyn
 Harrison, J. C. 1 c 542 Hancock st., Bklyn
 Harrison, J. S. 4 c 72 William st., Orange
 Harrold, C. C. 1 m 117 W. 64
 Hart, G. G. 1 m Larchmont Manor
 Hart, G. W. 2 m 89 Ross st., Bklyn
 Hartman, W. L. 2 m 275 Second st.
 Harvey, A. E. pl 41 E. 69
 Harwood, E. C. ph 309 W. 116
 Hashi, H. sp pl 34 Prospect st., Bklyn
 Hasking, A. P. 1 m 306 Varick st., Jersey City
 Hatch, W. P., Jr. 1 s 324 W. 57
 Hatley, J. G. sp s
 Haussling, F. R. 2 m 661 High st., Newark
 Haussling, G. 1 l 3 R. R. pl., Newark
 Haven, S. C. 2 m Morristown
 Haviland, H. F. 1 s 234 E. 31
 Havill, O. A. 2 s 385 Grove st., Jersey City
 Hawkins, N. L. 1 m Islip
 Hawkins, S. O. 4 s 61 Lefferts pl., Bklyn
 Hawks, E. M. 3 c Tarrytown
 Hayden, J. P. 1 l 337 W. 76
 Haydock, C. E. 2 c 341 E. 50
 Hays, H. 1 c 264 W. 89
 Hayt, R. A. 3 m 52 W. 38
 Hayt, R. O. 1 s 2055 7th ave.
 Hazay, M. 1 m 744 E. 6
 Hazen, T. E. p 1283 Columbus ave.
 Hazzard, H. C. 2 l 310 W. 115
 Heffelbower, G. F. ph 304 W. 115
 Heidelberg, M. G. 2 s 9 W. 90
 Heike, R. E. 4 s 256 Montgomery st., Jersey City
 Heimann, W. J. 2 c 123 W. 122
 Heincken, W. P. 3 s New Brighton
 Heller, B. S. 2 l Graham House,
 89th st., Madison ave.
 Hellman, A. M. 1 c 15 E. 92
 Hellman, G. S. 4 c 200 W. 44
 Henderson, A. M. sp p Nyack
 Henderson, H. H. 3 s 87 Locust Hill ave., Yonkers
 Hendrickson, H. A. sp m Atlantic Highlands
 Henne, C. 2d, 3 s
 Hennesey, J. F. 1 m West Chester
 Henning, W. H. 1 m 582 E. 164
 Henriquez, C. L. 3 m 17 W. 87
 Hensel, O. 3 m 197 2d ave.
 Herbert, E. 1 m
 Herdman, H. H., Jr. ph 183 Lenox ave.
 Herman, S. H. 1 l 54 E. 80
 Hermann, B. F. 1 s 78 E. 79
 Heroy, J. H. 1 c 47 E. 66
 Hervey, A. M. 2 m 317 W. 58
 Herzig, A. J. 1 m 128 W. 86
 Hess, A. F. 2 m 956 Madison ave.
 Heublein, A. C. 1 m 144 W. 65
 Heuser, F. W. J. 2 c 178 Lorimer st., Bklyn
 Hewitt, E. S. 1 s 306 W. 115
 Heydt, C. E., 2 l 301 W. 91
 Heyer, B. W. 1 s 129 E. 47
 Hickey, G. F. 2 l 726 Union st., Bklyn
 Higgins, J. E. sp s 374 W. 116
 Hildburgh, L. W. gr s 1 W. 30
 Hildburgh, S. C. 1 s 1 W. 30
 Hildreth, T. F. 1 s 530 W. 123
 Hill, B. F. p
 Hill, B. H. ph 1283 Columbus ave.
 Hill, L. 2 s 215 W. 54
 Hills, F. G. sp p
 Himowich, A. A. p 130 Henry st.
 Hinck, O. H. 4 c Montclair
 Hincks, R. B. 1 c 145 W. 91
 Hindley, C. T. 1 c 131 W. 75
 Hino, M. ph 700 Park ave.
 Hirsch, S. I. 1 m 314 E. 116
 Hishida, S. sp pl Mills Hotel
 Hitchcock, C. K., Jr. 2 s 417 W. 117
 Hoadley, H. sp c 347 W. 58
 Hoagland, W. L., Jr. pl 66 Brinkerhoff st., Jersey City
 Hochlerner, T. 2 s 204 Henry
 Hodder, J. 1 m 352 W. 55
 Hodges, A. L. sp ph 36 E. 12
 Hodges, W. V. 3 l 352 W. 115
 Hodgson, F. G. 2 m 117 W. 64
 Hoffman, I. M. 3 c Mt. Vernon
 Hogan, R. 2 c 313 W. 17
 Hogan, T. 1 c 313 W. 17
 Hoggatt, W. B. sp. s
 Hogue, R. C. 1 s 141st st., Hudson River
 Holden, E., Jr. 4 m 125 W. 64
 Holder, O. H. p 66 Park ave.
 Holland, F. J. 2 l 165 W. 22
 Holland, H. S. 1 c 473 W. 152
 Holmes, G. J. 3 m West Summit
 Holtz, C. W. 1 l 352 W. 87
 Honnet, J. H. 3 m 31 W. 58
 Hood, E. L. pl 700 Park ave.
 Hooker, R. S. 3 m
 Hoole, L. P. 3 m 77A Monroe st., Bklyn
 Hooper, H. N., Jr. 2 s 483 Manhattan ave.

Hopkins, G. G., Jr. 4 c 530 W. 123
 Hopkins, J. G. 1 c 350 Washington ave., Bklyn
 Horowitz, J. 3 m 50 E. 130
 Horsford, F. C. 3 m 58 Bank st.
 Howard, L. R. pl 700 Park ave.
 Howe, H. N. 4 m 106 W. 61
 Howe, J. P. 3 c 135 E. 38
 Howell, B. R. ph 183 Lenox ave.
 Hubbard, G. C., Jr. 2 s Tottenville
 Huber, H. G. 1 l 19th ave., n. 2d, Williamsbridge
 Hubschmitt, A. W. 3 m 408 E. 52
 Hudson, D. S. 4 c 157 Franklin st., Astoria
 Hudson, P. K. 4 s Waldorf-Astoria
 Huffaker, H. H. 1 l
 Hughes, F. J. 4 m North Plainfield
 Hughes, J. L. 4 m 146 W. 33
 Hulbert, C. S. 3 s 3 E. 14
 Hull, R. C. 3 c 448 9th st., Bklyn
 Hume, E. F. 2 m 108 W. 63
 Humpstone, O. P. 4 m 330 W. 57
 Hunt, F. L. 3 l 58 Morningside pk.
 Hunt, P. D. 1 c 448 9th st., Bklyn
 Huntington, F. W. sp s 2 Caton ave., Bklyn
 Huntington, L. S. sp pl 783 West End ave.
 Huntsman, O. B. ph 224 W. 114
 Hunting, G. H. 1 c 124 Quincy st., Bklyn
 Hutton, A. L. 1 c 319 W. 107
 Hutton, E. H. 3 m 500 Madison ave.
 Hyams, B. 4 m 1648 Madison ave.
 Hyde, H. S. p 210 E. 18
 Hyde, J. S. 1 m 28 W. 61
 Hyde, O. T. 2 m West Side Y. M. C. A.
 Hyer, W. E. 1 m 203 W. 87
 Hyman, W. M. 1 s Sherman Sq. Hotel
 Hynes, E. G. 3 m 132 New York ave., Bklyn
 Iglehart, C. W. 1 c 211 Clermont ave., Bklyn
 Imlach, W. B. 3 s 309 West End ave.
 Immediato, G. 3 s 399 Manhattan ave.
 Ingle, J. D. sp s 101 W. 85
 Ingle, H. W. 4 m Freehold
 Ingraham, D. P. 1 l 13 W. 9
 Ingraham, I. F. 1 m
 Irvine, F. B. 1 s 127 W. 58
 Irving, J. D. p 314 W. 115
 Irving, P. F. 3 c 314 W. 115
 Isaacs, L. M. 2 l 110 E. 73
 Israel, I. 3 l 43 E. 61

Jack, E. R. 1 s 36 W. 25
 Jackson, A. B. 1 l 1270 Amsterdam ave.
 Jackson, F. H., Jr. 2 m 347 W. 55
 Jackson, J. G. 2 c 146 W. 48
 Jackson, J. M. 4 m 1395 5th ave.
 Jackson, R. H. 4 m 144 W. 65
 Jackson, R. P. 1 c 407 St. Nicholas ave.
 Jacob, W. H. 1 m 156 Jefferson st., Paterson
 Jacobs, E. 2 m 229 E. 57
 Jacobs, R. K. 3 l 116 E. 121
 Jacobs, W. K. 4 m 892 Union st., Bklyn
 Jacoby, G. W. 1 s 112 E. 70
 Jacoby, L. 3 m 426 E. 115
 Jacocks, H. H. 2 c 230 Central pk., S.
 Jacque, C. F. 1 m 169 W. 83
 James, F. W. 1 s 200 W. 98
 James, M. T. 2 s 483 Manhattan ave.
 Jarmulowsky, H. 3 m 102 E. 60
 Jaynes, A. A. 1 m
 Jedel, M. 3 m 362 Warren st., Newark
 Jellinghaus, C. F. 2 m 45 St. Mark's pl.
 Jenkins, B. P. 1 c 21 W. 32
 Jennings, F. D. 1 m 151 W. 61
 Jennings, J. E. 4 m 889 Union st., Bklyn
 Jeschke, H. sp pl 41 E. 69
 Jessup, W. C. 3 s 139 E. 33
 Jewett, H. S. E. 1 c 2 Chelsea sq.
 Johnson, A. S. pl
 Johnson, B. G. sp c 102 5th ave.
 Johnson, H. S. 1 c 250 President st., Bklyn
 Johnson, J. B. 3 c 19 E. 9
 Johnson, P. V. K. 3 m 330 W. 58
 Johnson, R. H. ph Elmsford
 Johnson, W. A. sp c 137 W. 103
 Johnston, H. S. 3 l 37 E. 50
 Jones, A. L. 1 s 236 5th ave.
 Jones, F. B. ph 600 E. 143
 Jones, M. D. 3 m Far Rockaway
 Jones, S. F. 1 m The Royalton, W. 44
 Jones, T. J. pl 700 Park ave.
 Jones, W. B. 2 m
 Joseph, L. 2 l 146 Clinton st.
 Josephson, E. 3 s 131 Amity st., Bklyn
 Josephson, W. S. 1 l 131 Amity st., Bklyn
 Josephthal, S. L. 4 c 30 E. 62
 Judd, J. R. 2 m 317 W. 58
 Judkowitz, H. 4 m 164 Ridge st.
 Jung, A. N. 4 s 2040 7th ave.

- Kafka, H., Jr. 2 s
 194 Edgecombe ave.
 Kahn, S. 3 m
 406 E. 50
 Kaiser, C. S. 2 s
 Greenwich
 Kaiser, E. M. 1 l
 1 W. 81
 Kane, C. J. 4 m
 115 W. 63
 Kanolt, C. W. 1 s
 224 W. 104
 Kashiwa, A. M. sp *pl*
 34 Prospect st., Bklyn
 Kasner, E. *p*
 52 Catharine st.
 Kaufman, L. R. 1 c Brookside, N. J.
 Kaufmann, A. 2 s
 11 E. 66
 Kayser, A. A. sp. m
 209 E. 114
 Kayser, H. C. A. 1 l
 1063 Lexington ave.
 Keator, H. M. 1 m
 317 W. 58
 Kebler, J. L. 3 s
 606 W. 114
 Keeler, G. B. 2 c
 386 Monroe st., Bklyn
 Keenan, A. J. 1 m
 138 St. James pl., Bklyn
 Kelley, R. H. sp c
 Hartsdale
 Kellock, H. A. 3 c
 14 E. 87
 Kellogg, D. M., Jr. 1 l Oak Tree, N. J.
 Kellogg, W. G. 4 c
 68 W. 39
 Kelly, A. S. 3 m
 117 E. 59
 Kelly, J. J. sp c
 34 E. 69
 Kelly, R. 1 c
 119 E. 72
 Kemp, W. C. B. *pl* Hotel Lincoln
 Kemp, W. T. 2 l
 519 W. 123
 Kempner, M. 2 s
 165 Monroe st.
 Kendall, J. 1 m
 186 Spruce st., Newark
 Kennedy, T. J. L. 3 m
 131 W. 77
 Kennelly, W. F. 1 m
 556 Grove st., Jersey City
 Kenyon, S. N. 2 s
 Keppel, D. 2 s
 239 E. 17
 Keppler, E. A. C. *ph*
 28 W. 70
 Kerr, J. C. 3 l
 120 Broadway
 Keschner, M. 4 m
 72 Pitt st.
 Kidde, F. 3 c 66 Gates ave., Montclair
 Kidder, S. 1 c
 24 W. 134
 Kiefer, C. M. 1 l Hotel Winthrop
 Killgore, R. B. 3 l
 224 W. 139
 Kingsland, R. 1 c
 364 W. 119
 Kinney, V. C. 1 m
 366 W. 58
 Kiralfy, H. B. 3 c
 38 W. Washington sq.
 Kirby, J. N. 1 s
 33 W. 89
 Kirkman, L. G. 3 m
 317 W. 56
 Knapp, C. B. 1 m
 129 W. 61
 Knapp, J. R. 3 c
 62 W. 51
 Kneeland, F. R. 4 s
 239 W. 74
 Knight, F. H., 4 m
 316 W. 57
 Knight, H. B. 1 s
 519 W. 123
 Knight, R. 1 m
 161 W. 64
 Knowles, F. 3 m
 209 W. 118
 Knowles, R. 3 l
 353 W. 119
 Knowlton, F. K. 2 s
 164 W. 122
 Knox, H. A. 3 l
 478 Mott ave.
 Knudsen, A. S. 3 m
 Koenig, H. L. 1 l
 323 Washington st., Newark
 Kohn, A. H. 2 c
 334 W. 72
 Kohnstamm, L. 1 s
 133 E. 71
 Korn, H. 2 c
 45 E. 74
 Koronefsky, J. 3 m
 53 Henry st.
 Koscherak, F. E. 3 s
 127 W. 82
 Kosmak, G. W. 4 m
 23 E. 93
 Kramer, D. 2 m
 324 W. 33
 Krans, H. S. *ph*
 234 Central Park, W.
 Krauskopf, H. 1 m
 236 E. 79
 Krebs, M. H. 3 m
 211 E. 71
 Krehbiel, O. F. 1 m
 16 W. 120
 Kresel, I. J. 2 l
 1735 Madison ave.
 Kretz, W. C. *p*
 149 W. 12
 Krickl, M. 2 c
 28 W. 125
 Krug, E. F. 3 m
 353 W. 56
 Kuhr, E. O. 1 m
 299 Stuyvesant ave., Bklyn
 Kurrus, J. 4 m
 119 W. 61
 Kurzman, J. C. 1 m
 59 E. 82
 Lacey, R. A. 2 s 147 Amity st., Bklyn
 Laing, J. O. sp *pl*
 608 W. 113
 Lambord, B. F., Jr. sp *ph* 110 W. 126
 Lambrecht, J. W. 2 l
 112 E. 95
 Landes, E. W. 3 m
 794 Parker st., Newark
 Lane, C. J. 1 s
 129 Rich ave., Mt. Vernon
 Lang, E. J. 1 s Hotel San Remo
 Lange, G. E. sp *pl*
 5 W. 124
 Langer, S. *ph*
 91 E. 111
 Langs, J. P. 1 c
 Lansing, E. C. 1 m
 146 Lexington ave.
 La Roche, P. B., Jr. 1 c
 704 Madison ave.
 Larrabee, F. 1 l
 525 W. 125
 Lathrop, S. S. 3 m
 343 W. 56
 Latourette, L. E. 3 l
 363 W. 117
 Laughlin, W. C. sp *p*
 58 Morningside ave.
 Laurence, A. S. 1 c Stapleton
 Lavery, D. O. 1 s
 351 W. 46
 Lawlor, J. F. 2 s
 349 W. 25
 Lawrence, A. E. sp *p*
 1 W. 81
 Lawrence, A. N. 2 s
 549 West End ave.
 Lawrence, G. A. *p*
 55 E. 65
 Lawrence, W. H., Jr. 4 m
 143 W. 61
 Lawshe, J. E. 3 l
 61 W. 104
 Lawson, J. H. 1 m
 2 W. 106
 Lawson, L. M., Jr. 1 m
 15 E. 67

- Lawson, W. W. 1 c 146th st., Mott ave.
- Lay, C. D. 1 s 71 Willow dr., New Rochelle
- Leahy, D. T., Jr. 1 l 268 Clinton ave., Bklyn
- Leale, L. 3 c 604 Madison ave.
- Leavitt, S., Jr. 1 s Irvington-on-Hudson
- Lebhar, N. J. 3 m 11 E. 108
- Le Count, L. 3 s 680 St. Nicholas ave.
- Lederer, A. M. 2 c Ridgewood
- Lederman, J. D. 1 l 38 E. 60
- Ledoux, L. V. 1 c 39 W. 50
- Ledwith, T. A. 2 l 28 W. 72
- Lee, A. 1 l 122 Amity st., Bklyn
- Lee, J. T. 3 l 235 E. 124
- Lee, L. 1 m
- Lefferts, F. B. 1 s 34 E. 65
- Leffingwell, E. D. p 355 W. 56
- Lehmacher, F. 2 m 166 Springfield ave., Newark
- Leiter, M. M. 2 l 308 W. 104
- Lennehan, J. D. 1 l
- Leo, R. L. sp ph 327 W. 84
- Le Prince, J. A. A. gr s 622 W. 152
- Le Prince, L. F. 1 s 622 W. 152
- Lese, F. 3 l 231 E. 60
- Lesem, W. W. 4 c Hotel St. Lorenz
- Lesinsky, L. 3 c 1038 5th ave.
- Lesser, J. M. 3 l 307 E. 55
- Lesser, M. M. 4 m 19 E. 61
- Levine, A. J. 2 s 340 W. 88
- Levine, D. ph 239 E. 77
- Levy, C. 2 l 308 Alexander ave.
- Levy, D. 2 m 926 Columbus ave.
- Levy, E. 3 m 110 W. 78
- Levy, I. H. 2 m 208 Broome st.
- Levy, L. S. 1 l
- Levy, W. L. 2 l 200 W. 57
- Lewine, J. L. 2 l 813 Lexington ave.
- Lewis, C. S. sp ph Chelsea sq.
- Lewis, J. H. 2 m 326 W. 34
- Lewis, M. H. 3 s 25 E. 104
- Lewy, H. M. 1 c Madison Ave. Hotel
- Leyenberger, S. B. W. 2 m 98 3d ave., Newark
- Lichtenstein, O. R. 4 c 132 Amity st., Bklyn
- Lieb, C. C. 1 c 310 W. 58
- Lifshutz, N. 1 m 238 E. Broadway
- Liknaitz, D. ph 736 Lexington ave.
- Lindenmeyr, L. 2 s 240 E. 15
- Lindsay, H. B. 1 s West New Brighton
- Lindsay, W. G. 1 s 69 W. 97
- Line, A. M. 4 m 27 W. 44
- Linn, J. A. pl 445 W. 22
- Lipsky, I. sp c
- Littell, R. J. 1 c Summit
- Livengood, H. R. 4 m 1164 E. Jersey st., Elizabeth
- Lloyd, E. H. sp pl 4 W. 53
- Lloyd, N. J. sp s 314 W. 115
- Lobenstein, R. W. 3 m 245 Central park, W.
- Locke, J. A. ph 303 W. 84
- Lockhart, L. S. 3 l 218 W. 139
- Lockward, L. G. 2 s Caldwell, N. J.
- Lockwood, F. T. 1 s 350 W. 124
- Lockwood, S. P. 1 c 29 W. 56
- Lockwood, W. A. 3 l 29 W. 56
- Logan, J. C. 2 l 358 W. 118
- Logan, R. R. 2 l 600 W. 114
- Loizeaux, E. S. 2 m 205 E. 63
- Loney, F. R. 2 s 65 E. 64
- Long, M. W. sp pl 412 Lincoln st., Flushing
- Long, T. 3 l 261 W. 113
- Longacre, O., Jr. 2 s 614 W. 113
- Loomis, A. G. 3 l 240 Lenox ave.
- Loos, H. A. p 119 E. 115
- Lorenz, K. K. 2 c 168 W. 81
- Loughran, E. D. 1 m 24 W. 50
- Loughran, R. L. 4 m 24 W. 50
- Love, L. C. 3 m 318 W. 57
- Lovell, J. G. 1 m
- Lovenberg, I. 1 l
- Low, W. G., Jr. 2 l 30 E. 64
- Lowe, F. W. sp pl 25 W. 57
- Lowenstein, O. 3 c 42 E. 74
- Lowenstein, V. 4 m 70 E. 93
- Lowrey, J. H. 1 m 446 Market st., Newark
- Ludlam, W. K. 1 s 8 W. 16
- Lum, R. E. 3 c
- Lyall, E. H. 1 s 367 W. 20
- Lyall, H. J. 2 l 367 W. 20
- Lyle, H. H. M. 3 m
- Lyman, H. S. 4 m 355 W. 56
- Lynn, C. W. 4 m 139 W. 96
- McAlpin, E. A., Jr. pl The Alpine, 33d st. and B'way
- McAnerney, F. B. 1 l 20 W. 49
- McAnerney, J. A. 1 s 20 W. 49
- McCabe, J. 1 m 78 Washington pl.
- McCabe, T. S. 1 m 400 Market st., Newark
- McCafferty, J. A. 4 m 754 Park ave.
- McCann, J. F., Jr. 3 c 361 W. 123
- McCarthy, J. F. 2 m 142 W. 26
- McCaskell, G. W. 1 s 164 W. 126
- McCaskell, J. A. 4 s 164 W. 126
- McCastline, R. 4 m 313 E. 57
- McChesney, H. F. 1 m 143 W. 61
- McClelland, J. F. 3 s 314 W. 115
- McClure, A. J. 1 c 22 W. 49

- McColgan, J. T. 2 c
169 Lexington ave.
- McComas, H. C., Jr. *pl*
26 Morningside ave.
- McCoy, F., Jr. 1 *l* 128 W. 82
- McCulloch, R. A. 4 *s* 258 W. 73
- McCully, R. R. 2 *m* 220 W. 24
- McDonald, W., Jr. 4 *m* 144 W. 64
- McEntee, E. J. 2 *m*
144 Union ave., Bklyn
- McFarland, G. H., Jr. 1 *m* 37 W. 90
- McGill, E. L. 2 *m* 117 W. 64
- McGowan, W. E. R. 1 *s* 244 E. 20
- McGrath, J. F. 1 *m*
- McGraw, T. A., Jr. 1 *m*
- McIntyre, H. K. 3 *s* 303 W. 74
- McKeag, E. C. 2 *l* New Brunswick
- McKee, F. L. 4 *m* 300 W. 59
- McKee, T. H. 3 *l* 47 E. 21
- McKelvy, J. P. 2 *m* 135 W. 64
- McKenna, J. J., Jr. 3 *c* 104 W. 116
- McKenzie, E. T. 2 *m* 116 W. 84
- McKeon, P. J. 2 *c* 239 W. 12
- McKinley, J. G. 1 *s* 466 Park ave.
- McLanahan, G. X. *sp l*
Hotel Majestic
- McLaren, J. D. *sp m* 322 W. 30
- McLaughlin, A. J., Jr. 3 *m*
143 W. 61
- McLintock, A. 2 *s* 149 W. 79
- McNaught, R. H. 1 *l* 325 W. 78
- McSheehy, T. C. 1 *m* 277 W. 22
- McWhood, J. K. 1 *c*
485 Orange st., Newark
- MacAlister, W. W. 4 *m* 143 W. 64
- MacCracken, G. G. *sp p*
University Heights
- Macdougall, G. W. 3 *m*
- MacDougall, H. K. 1 *c*
209 So. 6th st., Newark
- MacGuire, D. P. 1 *m*
24 Madison ave., New Brighton
- Machen, C. H. 3 *s* 150 W. 82
- MacIntyre, C. B. 1 *c* 146 W. 12
- Mackay, J. W. 2 *c* Bay Ridge
- Mackintosh, K. 2 *l* 214 W. 78
- MacLay, R. *sp pl* 50 W. 57
- Madan, J. A. 3 *s* 306 W. 115
- Maehlen, F. 1 *s* 318 W. 116
- Magie, J. E. *ph* 17 W. 119
- Magnus, B. 3 *s* 22 E. 111
- Mahan, L. E. 1 *c* 160 W. 86
- Mainzer, H. R. 2 *s* 9 E. 66
- Mairs, O. B. 1 *l* 165 Carroll st., Bklyn
- Maisenholder, E. F. 1 *s* 505 6th st.
- Malsan, A. S. *sp c* 138 W. 93
- Manning, E. B. *sp ph*
450 Manhattan ave.
- Mantinband, J. 3 *m* 268 E. 10
- Manton, M. T. 1 *l*
946 Gates ave., Bklyn
- Mapes, C. M. 1 *s* 137 W. 129
- Mapes, C. S. 1 *c* 60 W. 40
- Marcus, J. 4 *c*
38 Danforth ave., Jersey City
- Margulies, I. 3 *m* 209 E. 114
- Margulis, J. 3 *m* 207 Madison st.
- Marks, D. 2 *l* 313 W. 126
- Marsh, E. J., Jr. 3 *m* 168 W. 73
- Marston, C. S. 1 *s* 309 W. 45
- Martin, H. W. *sp ph* 29 E. 21
- Martin, J. F. 1 *m* 105 W. 62
- Martin, J. S., Jr. 2 *s*
260 Madison ave.
- Martin, T. A. 3 *m* 436 Lenox ave.
- Martin, U. F. 3 *m* 447 W. 57
- Mason, H. C. 3 *l* 2 W. 103
- Mason, L. J. 3 *m* 43 W. 60
- Mason, W. 2 *m* 560 Park ave.
- Masury, J. W. *sp p*
- Matthew, G. 4 *c*
509 Amsterdam ave.
- Matthews, F. C. 1 *m* 139 W. 60
- Matthews, W. H. *pl* 700 Park ave.
- Mattice, H. A. 2 *c* West Chester
- Matty, L. J. 1 *s* 322 W. 113
- Maxwell, W. H., Jr. 3 *c* 361 W. 121
- Mead, L. D. 1 *m* 151 W. 80
- Meagher, J. F. W. 2 *m*
35 Willow pl., Bklyn
- Meehan, J. A. 1 *s* 215 E. 61
- Meeker, A. Y. 3 *c* Glen Ridge
- Meeker, H. D. 1 *m* Orange
- Meeks, C. G. 1 *c* 10 Barclay st.
- Meeks, R. 2 *s* 17 W. 84
- Mehler, A. J. 3 *c* 619 West End ave.
- Mehrbach, W. 3 *s* 56 E. 72
- Meissner, W. C. 2 *s* 48 W. 25
- Mendel, E. M. 4 *m*
- Mendelson, L. G. 1 *s* 1480 Madison ave.
- Menk, P. E. W. 3 *m* Newark
- Menline, J. S. 1 *l* 356 E. 69
- Merchant, M. H. 2 *m* 139 W. 61
- Mereness, N. D. *pl* 504 W. 146
- Merrell, H. B. 1 *c* Upper Montclair
- Merrill, E. B. 1 *c* 310 W. 113
- Merry, F. C. 1 *s* 219 W. 135
- Meyer, A. S. 2 *c* 136 W. 132
- Meyer, C. G. *sp pl* 137 W. 86
- Meyer, R. B. 2 *c* 58 W. 113
- Meyer, W. H. 1 *m*
190th st., Amsterdam ave.
- Meyers, R. A. 1 *c* 38 Bleecker st.
- Middleton, G. *sp c* 151 W. 13
- Milke, E. E., Jr. *sp p*
82 Winfield ave., Greenville
- Miller, C. W. 3 *l* 353 W. 119

Miller, E. I. 4 *m*
 51 13th ave., Newark
 Miller, E. W. sp *m* Nyack
 Miller, F. H. 3 *m*
 212 Hooper st., Bklyn
 Miller, G. A., Jr. 1 *s* Montclair
 Miller, H. A. 4 *c* 232 W. 45
 Miller, J. A. 4 *m* 137 W. 64
 Miller, J. W., Jr. *p*
 Miller, N. D. 1 *l* 248 W. 123
 Milliken, S. M., Jr. 1 *m*
 990 Madison ave.
 Mills, E. K. 3 *l* 228 W. 123
 Mills, F. H. 2 *l* 912 West End ave.
 Mills, H. J. 2 *s* 314 W. 115
 Millspaugh, W. P. 3 *m* 447 W. 57
 Milne, W. E. 1 *l* 35 W. 36
 Miner, E. D. 2 *l* 1150 Forest ave.
 Minsky, A. H. 1 *s* 1583 Madison ave.
 Mitchell, J. P. 4 *c* 447 W. 162
 Mitchell, A., Jr. 1 *m* 139 W. 63
 Mitchell, E. B. 2 *c* Flushing
 Mitchell, H. B. 2 *c*
 164 Washington park, Bklyn
 Mitchell, R. J. 2 *m*
 911 West End ave.
 Mitchell, W. E. 2 *s* 239 W. 105
 Moffat, E. S. sp *s* 306 W. 115
 Moffatt, M. R. 4 *c* Mamaroneck
 Mohr, A. G. *pl* 17 Bedford st.
 Monroe, P. W. 1 *m*
 35 Caryl ave., Yonkers
 Montgomery, W. C. 3 *m* 5 W. 74
 Mooney, F. X. 2 *l* 313 W. 126
 Moore, C. C. 3 *m* 224 W. 71
 Moore, J. B. 2 *c*
 Moore, W. U. 3 *c* 203 W. 117
 Moran, C. 4 *c* 17 W. 56
 More, T. 3 *l* 141 W. 122
 Morey, A. T. 2 *l* 227 W. 122
 Morgan, G. W. 2 *l* 135 W. 71
 Mork, S. 2 *l* 348 E. 51
 Morlath, W. sp *p* 1821 Madison ave.
 Morrill, W. C. 2 *s* 24 W. 83
 Morris, S. F., Jr. sp *c* 16 E. 30
 Morrison, A. B. 2 *l* 684 E. 143
 Morrison, C. E. 2 *s* 159 W. 93
 Morrow, D. W. 3 *l* 44 W. 92
 Morse, L. B. sp *pl* 17 Lexington ave.
 Morse, R. G. gr *s* 122d st., Boulevard
 Morton, C. E. 2 *m*
 Moschcowitz, E. 3 *m* 364 W. 55
 Moschkowitsch, M. 3 *s* 1560 Ave. A
 Mosenthal, H. O. 4 *c* 16 W. 85
 Mosenthal, W. J. 2 *c* 16 W. 85
 Mosher, H. H. sp *c* 339 W. 88
 Mosler, F. H. 1 *m* 119 W. 85
 Moss, L. H. 4 *m* 100 W. 77
 Mount, T. L. 1 *s* 232 W. 22

Moynan, W. T. 2 *m*
 134 Hooper st., Bklyn
 Mueller, A. C. sp *l* 529 W. 125
 Muirheid, J. 3 *c* 374 W. 116
 Mulcahy, T. A. 2 *m* 106 W. 61
 Müller, J. 3 *s* 418 W. 154
 Mulligan, C. R., Jr. sp *c* Dover
 Mund, C. 3 *m* 308 E. 62
 Munger, W. R. sp *m*
 Munro, A. A. *pl*
 Murphy, G. H. 1 *m* Rosebank, S. I.
 Murphy, G. R. 4 *s* West Hoboken
 Murphy, H. A. 1 *s* 57 Park ave.
 Murphy, J. D. 1 *m*
 Murphy, J. J. 1 *m* 70 W. 46
 Murphy, W. A. 1 *s* 119 E. 91
 Murphy, W. L. 2 *l* 519 W. 123
 Murray, A. *p* Morristown
 Murray, H. C. 3 *l* 67 W. 96
 Murtha, E. I. 3 *l* 241 W. 54
 Myers, D. M. 1 *s* 309 W. 70
 Myers, D. S. 1 *l* 108 E. 55
 Myers, S. S. 3 *l* 334 E. 86
 Myrick, F. W. 4 *m* 129 W. 61
 Nadeau, O. sp *ph* 275 Cen'l Park, W.
 Nash, S. P., Jr. 2 *c* 258 W. 73
 Navoni, J. 3 *m* 150 Sullivan st.
 Neal, J. R. *pl*
 Neiman, L. 1 *c* 35 Mt. Morris ave.
 Nelson, F. A. 2 *s* 108 W. 84
 Nelson, G. A. 2 *c*
 184 Vernon ave., Bklyn
 Nelson, L. M. *ph*
 279 Decatur st., Bklyn
 Neresheimer, F. E. 4 *m*
 Bayside, L. I.
 Nesbit, W. M. 1 *c* 706 West End ave.
 Nesbitt, R. H. 4 *m* 121 W. 61
 Neu, S. S. 2 *s* 101 E. 61
 Neugroschl, A. E. 3 *c* 14 W. 117
 Newborg, L. D. 3 *c* 33 E. 67
 Newgass, G. W. 3 *l* 148 E. 61
 Newlands, D. M. sp *s* 139 E. 30
 Newman, E. S., Jr. sp *s* 9 W. 31
 Newman, S. L. 2 *m* 211 Madison st.
 Nichols, W. S. 1 *s*
 313 Washington st., Newark
 Nicolson, J., Jr. sp *ph* 318 W. 57
 Noble, R. E. 4 *m* 181 W. 75
 Noll, F. A. 2 *l* 239 W. 123
 Noonan, C. J. 3 *m*
 554 Henry st., Bklyn
 Noonan, T. F. 2 *l* 252 W. 25
 Norman, M. W. 3 *c* World Building
 Norris, B. F. 2 *l*
 254 Lafayette ave., Bklyn
 Norris, E. 1 *l* 110 W. 47
 North, C. E. 3 *m* 316 W. 57

- Oakley, W. L.** 2 s 35 E. 64
O'Brien, F. A. sp m 252 W. 72
O'Brien, F. J. V. 4 m 111 W. 74
O'Brien, T. E. 3 c 247 Marcy ave., Bklyn
Ochiai, J. K. sp. ph 175 Ninth ave.
O'Connor, C. G. 4 m 400 Pacific st., Bklyn
O'Connor, J. H. 4 m 341 W. 55
Oddie, H. H. 2 s 59 W. 48
O'Donovan, L. J. 1 s 37 W. 36
O'Dwyer, J. 3 m 2420 7th ave.
Ogden, C. J. 3 c 250 W. 88
Ogilvie, J. 4 m 129 W. 61
O'Leary, W. J. sp m 236 W. 55
Olmstead, H. B. 1 s The Acropolis, W. 123
O'Neill, H. P. 1 m 175 W. 97
Oppenheimer, B. S. 2 m 201 W. 85
Orgel, D. H. 3 m 736 E. 9
Orner, G. D. 4 s 153 W. 98
O'Rourke, C. A., Jr. 1 s 1110 Ogden ave.
O'Rourke, M. F. 1 m 318 E. 14
Osborn, T. D. sp pl Sheephead Bay
Osgood, A. T. 4 m 264 W. 57
O'Shea, J. E. 1 s 31 W. 88
Ottenberg, R. 1 c 58 E. 92
Oviatt, D. B. p 172 W. 109
Packard, M. 3 m 151 W. 61
Page, A. W. 1 m Chappaqua
Page, R. W. 2 s 527 3d st., Bklyn
Palmenberg, O. W. 2 s 107 W. 70
Palmer, A. W. 2 c 74 Arlington ave., East Orange
Palmer, L. H. 1 c 520 W. 123
Palmer, V. E. 3 l
Pannaci, C. E. E. 3 m Sea Bright
Paret, W. P. 3 l 161 W. 76
Park, W. 3 m 86 W. 103
Parke, J. L. 1 s 203 W. 106
Parker, A. W., Jr. 3 s 68th st. and 2d ave., Bklyn
Parker, G. 3 c 68th st. and 2d ave., Bklyn
Parker, L. R. 2 s 345 State st., Bklyn
Parr, H. L. 1 c Yonkers
Parsons, G. 4 c 12 W. 123
Parsons, I. D. 2 s 344 W. 23
Parsons, T. 4 c 12 W. 123
Pascual, W. V. 3 m 263 Stuyvesant ave., Bklyn
Patterson, H. S. 3 m 19 E. 45
Paulmier, F. C. p 310 W. 122
Payne, W. A. 4 m 121 W. 15
Pearson, C. E. 3 m New Brighton
Peck, C. F. 1 s 42 Dwight pl., Englewood
Peck, G. W., Jr. pl 41 E. 69
Pegram, R. B. 2 c 129 E. 40
Pelgram, G. O. 3 m 337 W. 88
Pell, J. D. 4 c 13 E. 29
Pell, W. 1 c 13 E. 29
Pentlarge, V. H. 1 m 441 W. 57
Perkins, E. C. 1 l Murray Hill Hotel
Perkins, H. A. 4 s 202 W. 103
Perkins, N. 1 l 5 E. 40
Perrin, E. N. ph 17 Lexington ave.
Perrine, W. W., Jr. 1 c 820 West End ave.
Perry, O. B. 3 s 1270 Amsterdam ave.
Perry, W. V. 3 l 18 E. 40
Petty, N. O. 3 l 216 W. 22
Peyser, H. sp s 348 E. 78
Pfeiffer, C. H. 2 s 1 W. 81
Pfetschinger, F. 1 m
Phelan, J. J. 3 l 66 W. 85
Phelan, J. M. 2 m 102 39th st., Bklyn
Phillips, F. G. 1 m
Phillips, H. M. 3 l 228 Madison st.
Picher, O. S. 1 l 101 W. 73
Pickhardt, W. P. 2 s 1042 Madison ave.
Pier, V. S. 2 m 238 W. 11
Pierce, E. F. 2 m 141 W. 63
Pierson, F. H., Jr. 4 m 1129 E. Jersey st., Elizabeth
Pigueron, W. G. sp s 531 E. 161
Pilcher, P. M. 3 m 145 Gates ave., Bklyn
Pindar, F. S. 3 m 318 W. 57
Pinneo, F. W. 2 m Newark
Pino, P. sp s 138 W. 83
Pitt, R. 3 s 314 W. 115
Pittman, J. G. 3 m 108 W. 89
Planten, W. R. J. 2 l 44 8th ave., Bklyn
Platt, M. C. 2 c 306 W. 139
Platt, S. B. 2 c Bay Shore
Platz, J. M. 2 l 252 W. 128
Plonsky, S. E. 2 s 50 W. 88
Plotz, I. I. 3 m 48 Rivington st.
Plum, H. G. pl 218 W. 123
Polatsak, H. B. 3 m 243 7th st.
Pollak, A. W. 1 m 346 E. 58
Pollak, F. D. 3 l 210 W. 139
Pollard, C. W. 4 m 159 Madison ave.
Pollard, D. H. 3 c
Pollmar, F. C. sp s 175 W. 97
Pollock, H. W. 1 l 2333 8th ave.
Pool, E. H. 4 m 318 W. 57
Pope, F. J. p 2049 7th ave.
Pope, J. E. pl 12 Convent ave.
Popper, W. ph 260 W. 93
Porter, E. P. 3 m 415 W. 57
Porter, J. F. sp s

Potter, A. P., Jr. 1 c 50 W. 48
 Potter, P. A. 4 m 111 W. 87
 Potts, R. B. 1 c 39 E. 39
 Poulson, F. J. sp m 211 E. 10
 Powers, W. H. 1 s 8 W. 50
 Pratt, W. H. 3 l 363 W. 117
 Prentice, A. C. 2 m 127 W. 62
 Preston, P. B. 2 m 218 Walnut st., Newark
 Pretzfeld, C. J. p Madison Ave. Hotel
 Prevey, C. E. pl
 Prince, H. S. 1 c 217 W. 122
 Pringle, E. G. 2 l 213 W. 123
 Proctor, D. G. 2 c 307 W. 82
 Proskauer, J. M. 3 l 138 W. 97
 Prout, G. P. 1 s 310 W. 115
 Province, O. A. 1 m
 Pullich, O., Jr. 1 c 136 W. 111
 Pulsifer, T. C. 4 m 151 W. 61
 Putnam, A. W. 2 l 16 W. 77

Quackenbos, G. P. 3 c 331 W. 28
 Quel, B. 3 m 43 Canal st.
 Quell, J. A., Jr. 1 m 31 Sumpter st., Bklyn
 Quinby, W. O'G. 3 m 80 Columbia st., Newark
 Quinn, W. R. 2 c 659 10th st., Bklyn

Rabinovitz, M. 3 m 21 Eldridge st.
 Radin, H. T. 1 m 347 E. 116
 Rae, J. G. 2 s 953 Home st.
 Raiman, R. I. 2 c 704 Quincy st., Bklyn

Rambaud, G. G. 4 m 313 W. 23
 Ramey, H. M., Jr. 1 l 108 W. 83
 Ramsay, A. L. 3 l 847 West End ave.
 Randall, H. T. 2 l 10 Girard ave., East Orange
 Randolph, C. F. ph 607 W. 138
 Randolph, E. sp s Newark
 Randolph, F. P. 2 l 51 E. 29
 Randolph, W. 2 c 107 Passaic ave., Newark

Rang, A. F. 1 m 65 Whipple st., Bklyn
 Raper, C. L. pl 361 W. 123
 Rappold, G. A. 1 s 750 Flushing ave., Bklyn
 Rawles, W. A. pl 1270 Amsterdam ave.

Rawlins, H. N. sp pl 67 W. 68
 Ray, D. H. 2 s 416 W. 55
 Raymond, E. H., Jr. 3 c Summit
 Reynolds, H. F. 1 l 352 W. 120
 Read, C. P. 2 s 75 E. 54
 Read, T. T. 1 s 85 Cumberland st., Bklyn

Recknagel, H. S. 1 l 68 Macon st., Bklyn
 Redden, W. A. 3 l 367 W. 117
 Reed, W. C. 1 m 406 W. 19
 Reich, S. ph 239 E. 104
 Reichers, G. H. 3 m 1139 B'way, Bklyn
 Reiley, R. J. 3 s 145 E. 34
 Reilly, F. P. 2 l 367 W. 117
 Reilly, J. A. 3 s 349 E. 42
 Reinhardt, E. 2 m 1694 Lexington ave.

Reinsberg, C. H. 3 m 34 Varick st.
 Reis, L. R. 1 s 609 West End ave.
 Reisman, S. C. 2 m 260 7th st.
 Reiss, H. 3 m 301 8th st.
 Remy, A. F. J. ph 112 W. 137
 Requa, L. F., Jr. 1 l 400 West End ave.

Reynolds, G. 2 m 117 W. 64
 Reynolds, H. B. 3 m 214 W. 78
 Reynolds, J. E. 3 l 214 W. 78
 Reynolds, J. L. 1 m North Castle, N. Y.

Reynolds, M. T. 2 m 558 7th ave.
 Rhoades, L., Jr. 1 c 132 W. 70
 Rhodes, G. B. 1 m 346 W. 58
 Rhodes, J. M. pl 235 W. 120
 Rice, J. F. 1 m 318 W. 57
 Richards, G. W. 1 m South Orange
 Richardson, R. 2 l Flushing
 Richardson, R. K. pl 252 W. 121
 Richmond, J. P. W. 1 s 1144 Tinton ave.

Rider, C. C. 3 c 58 Morningside ave.
 Riederer, H. S. p 145 W. 94
 Riggio, L. D. 2 m 79 E. 114
 Riggs, A. F. 1 m 15 W. 39
 Riley, M. I. W. 2 l 227 W. 12
 Ringer, P. H. 2 c 312 Manhattan ave.

Rionda, J. B. 2 s Woody Crest ave., Highbridge
 Rionda, L. J. 1 s

Woody Crest ave., Highbridge

Rionda, M. E. 2 s 141 W. 93
 Ripley, J. A. 1 s 23 W. 57
 Rising, H. R. 1 s 310 W. 115
 Riter, L. E., Jr. 3 s 2051 7th ave.
 Robbins, W. H. 2 l Bay Shore
 Robeson, A. M. sp s 12 W. 31
 Robinson, A. 2 s 17 E. 49
 Robinson, B. R. 1 l 42 W. 37
 Robinson, F. A. 1 s 123 W. 76
 Robinson, F. W. sp ph 620 E. 135
 Robinson, H. F. 1 l 42 W. 37
 Robinson, M. 1 l 23 Washington sq., N.

- Robinson, R. M. 2 *l* 351 W. 115
 Roell, A. J. 1 *s* 1059 2d ave.
 Roemer, W. B. 4 *m* 140 E. 49
 Rogers, A. 2 *m* 318 W. 57
 Rogers, A. P. sp *s* 305 W. 55
 Rogers, E. W. 2 *s* 372 Manhattan ave.
 Rogers, H. H., Jr. sp *p* 26 E. 57
 Rogers, J. J. 2 *m* 318 W. 57
 Rogers, J. S. 1 *l* 35 W. 49
 Rogers, T. F. 1 *l*
 Rogers, W. J. 1 *s* San Remo Hotel
 Roll, J. K. 2 *l* 147 E. 92
 Roman, J. M. 3 *s* 125 E. 122
 Roos, L. L. 3 *m* 134 W. 85
 Ropes, E. C. 4 *c* 125 Willow st., Bklyn
 Ropes, I. F. C. 1 *c* Morristown
 Rose, A. F. 1 *s* Tompkinsville
 Rose, C. R. 1 *c*
 Rose, R. H. 1 *m*
 Rosenbaum, S. 2 *l* 247 E. 51
 Rosenberg, D. D. 1 *m* 34 Plaza, Bklyn
 Rosenberg, M. 4 *m* 240 E. 30
 Rosenblatt, A. 1 *s* 55 E. 92
 Rosenblatt, G. B. 1 *s* 162 W. 44
 Rosenblueth, M. 1 *c* 348 E. 72
 Rosenbluth, B. 1 *m* 336 E. 70
 Rosenbluth, M. 1 *m* 102 Attorney st.
 Rosensohn, W. 3 *m* 49 Eldridge st.
 Rosenthal, C. M. 2 *l* 344 E. 50
 Rosenthal, L. W. 1 *s* 35 W. 114
 Rosenwasser, C. A. 4 *m* 248 Littleton ave., Newark
 Ross, S. M. 1 *s* 171 W. 90
 Rossi, L. M. 2 *s* 134 W. 83
 Rothe, H. E., Jr. 1 *m* Newark
 Rowe, N. L., Jr. 3 *m* 139A Academy st., Jersey City
 Roy, H. F. 2 *l* 174 W. 126
 Roys, C. K. 2 *m* 145 W. 61
 Ruddell, F. S. *pl* 350 Manhattan ave.
 Runge, A. 3 *s* 154 Bowne ave., Flushing
 Rupp, A. sp *ph* 225 E. 19
 Ruppert, G. E. 3 *l* 1116 5th ave.
 Ruslander, S. L. 1 *l* 1294 Columbus ave.
 Rusling, V. 1 *m* 575 Broadway, Paterson
 Russ, W. E. sp *s* 399 Manhattan ave.
 Russell, J. I. 2 *m* 318 W. 57
 Russell, T. G. 4 *m* 101 W. 73
 Rutz, A. A. 4 *m* 166 7th ave., Bklyn
 Ryan, J. P. 1 *m*
 Ryan, P. F. X. 2 *m* 111 E. 75
 Ryder, G. H. 4 *m* 318 W. 57
 Ryker, H. B. 2 *s* 19 W. 123
 Ryttenberg, C. P. 1 *c* 63 E. 78
 Sage, D. 2 *s* 501 W. 113
 St. Clair, H. H., Jr. 3 *c* 344 W. 123
 St. George, A. H. 2 *c* 35 Lorillard pl.
 St. John, T. R. 1 *c* 338 W. 19
 Salant, L. sp *ph* 333 E. 123
 Salant, W. 4 *m* 333 E. 123
 Sales, R. H. 3 *s* 200 W. 96
 Sander, E. J. sp *s* 1387 Lexington ave.
 Sandy, W. C., Jr. 2 *m* 262 N. 6th, Newark
 Sanger, E. L. sp *p* 124 W. 64
 Sano, Z. sp *pl* 232 W. 135
 Saphir, J. F. 1 *m* 285 E. 3
 Sarle, J. R. 1 *l* 58 John st.
 Satenstein, D. L. 1 *m* 236 E. B'dwy
 Satterlee, E. L. 3 *s* 60 E. 78
 Satterlee, H. S. 3 *m* 8 W. 18
 Saunders, N. B. 3 *m* 121 W. 61
 Saxe, J. G. 2 *l* 458 W. 22
 Scarlett, A. E. 2 *c* 350 S. 4th ave., Mt. Vernon
 Schaeffer, B. L. 2 *m* 208 E. B'dwy
 Schafer, A. S. 3 *c* 52 W. 46
 Schalkenbach, R. N. sp *s* 500 W. 133
 Schan, G. W., Jr. sp *m* 227 E. 62
 Schanck, W. H. 1 *s* 101 W. 73
 Scharf, H. W. 1 *s* 108 W. 115
 Scheina, O. 1 *m* 1997 Lexington ave.
 Scheinberg, L. 1 *m* 171 E. B'dway
 Schell, R. M. sp *pl* San Remo Hotel
 Schenck, G. K. W. 2 *m* Flatlands, N. Y.
 Scherr, E. W., Jr. *p* 2067 7th ave.
 Scherrer, J. A. 1 *s* 629 W. 138
 Scheuer, A. J. 1 *c* 22 W. 89
 Schildecker, C. B. 2 *m* 144 W. 64
 Schimper, F. J. von M. 1 *s* 314 W. 115
 Schley, G. B., Jr. sp *pl* 812 Madison ave.
 Schlosser, P. 1 *s* 2 E. 92
 Schmidt, C. G. A., Jr. 1 *s* 202 W. 139
 Schneider, W. A. M. 4 *m* 235 E. 52
 Schneider, F. A. 2 *m* 146 W. 64
 Schnessler, R. W. sp *m* 322 2d ave.
 Schoen, E. J. 1 *s* 57 2d ave.
 Schreiber, G. G. 1 *l* P. O. Box 2973
 Schroeder, D. H. *ph* 41 E. 69
 Schroeder, G. G. 1 *s* Bartow
 Schroeder, H. 4 *s* 137 Madison ave.
 Schroeder, L. H. 1 *l* 306 W. 121
 Schulhofer, S. 2 *m* 338 E. 120
 Schulte, E. D. N. 4 *s* 47 W. 25

Schulte, H. von W. 2 *m* 47 W. 25
 Schultz, A. P. 2 *m* 258 Broome st.
 Schumm, W. F. sp *s* 885 Columbus ave.
 Schurz, H. 2 *l* 16 E. 64
 Schuster, E. 1 *c* 226 W. 114
 Schuyler, L. R. *pl* 434 Central pk., W.
 Schuyler, M., Jr. 4 *c* 1025 Park ave.
 Schwartz, H. W. 2 *m* 189 Midland ave., Bloomfield
 Schweitzer, H., Jr. 2 *m* 366 9th ave.
 Schwerin, C. M. 2 *s* 324 W. 113
 Schwerin, M. 3 *s* 324 W. 113
 Schwersenski, A. L. 2 *l* 2018 5th ave.
 Scofield, C. E. 4 *m* 152 Taylor st., Bklyn
 Scott, A. 1 *l* 258 W. 24
 Scott, G. C. gr *s* N. Y. Athletic Club
 Scudder, H., Jr. 4 *s* 21 E. 22
 Scully, D. J., Jr. 4 *m* 165 Penn st., Bklyn
 Seaman, W. C. 1 *l* Glenwood Landing
 Sears, S. F. *ph* 618 W. 113
 Seckel, W. 1 *m* 154 E. 79
 Seelig, M. G. 3 *m* 108 W. 63
 Seff, I. 1 *m* 57 E. 117
 Seguire, E. M. 3 *c* Rosebank, S. I.
 Seifert, K. F. J. 1 *s* 540 E. 157
 Seligsberg, W. N. 1 *c* 1034 Park ave.
 Selleck, E. E. 2 *m* 318 W. 57
 Senftner, A. D. 2 *c* 108 W. 136
 Senftner, A. E. 4 *c* 108 W. 136
 Serrano, V. 1 *s* 257 W. 84
 Severino, J. M. 4 *m* Astoria
 Sewall, F. H., 1 *c* 161 Cumberland st., Bklyn
 Seward, F. K. 4 *c* 113 W. 85
 Shanahan, R. H. 3 *m* 151 W. 61
 Shangle, M. A. 3 *m* Roselle
 Sharkey, H. R. 2 *s* 680 St. Nicholas ave.
 Sharp, J. C. 2 *m* 373 12th st., Bklyn
 Shattuck, E. P. 3 *l* 306 W. 115
 Shattuck, F. G. sp *ph* 209 W. 106
 Shearer, L. H. 2 *m* 117 E. 54
 Shearman, R. W. 2 *m* 398 Van Pelt st., Long Island City
 Shearman, T. G., Jr. 2 *l* 1161 Amsterdam ave.
 Shepard, T. O. *p* 33 W. 47
 Shepard, W. A. 2 *c* 102 W. 75
 Sheppard, J. J. sp *pl* 890 West End ave.
 Sherer, P. A. 4 *c* 530 W. 123
 Shipley, A. E. 4 *m* 239 Keap st., Bklyn
 Shipman, C. S. 2 *m* 1 W. 128
 Shirrefs, R. A. 4 *m* 571 Madison ave., Elizabeth

Shoemaker, H. W. sp *c* 22 E. 46
 Shoemaker, W. B. 1 *c* 22 E. 46
 Shotwell, J. T. *pl* 400 W. 124
 Shoup, A. H. sp *c* 120 W. 82
 Shreve, J. N. 1 *s* 136 E. 62
 Shrier, A. F. 4 *m* 128 Avenue C
 Siegel, H. L. 3 *c* 1887 7th ave.
 Sigafoos, O. L. sp *ph* Hastings-on-Hudson
 Siglar, H. B. 1 *m* 64 E. 120
 Silbiger, S. 1 *l* 68 North Moore st.
 Silk, M. 1 *m* 68 North Moore st.
 Simons, T. 3 *c* Yonkers
 Simmons, W. W. *p* 318 W. 116
 Simonson, L. M. 4 *s* Pelham
 Simpson, R. G. 4 *c* Plainfield
 Simpson, W. T. 3 *s* 71 W. 124
 Sinclair, U. B., Jr. sp *ph* 102 W. 92
 Sites, C. M. L. *pl* 129 Lexington ave.
 Slade, H. S. 3 *c* 95 Woodworth ave., Yonkers
 Slaven, R. E. 4 *s* 119 W. 72
 Sloan, A. 1 *m* 106 E. 55
 Sloan, T. G. 4 *m* 318 W. 57
 Sloane, T. O., Jr. 1 *s* South Orange
 Slocum, H. B. 2 *m* 158 Walnut st., Montclair
 Small, H. F. 2 *c* 54 W. 85
 Smith, A. D. 1 *m* 53 Jefferson ave., Bklyn
 Smith, A. G. 3 *c* 95 Grand st., Bklyn
 Smith, B. 3 *s* 144 W. 73
 Smith, B. W. 2 *s* 553 W. 156
 Smith, C. C. 2 *l* 519 W. 123
 Smith, C. E. sp *ph* 267 Park st.
 Smith, C. H. 1 *s* 1293 Madison ave.
 Smith, C. H. 2 *m* 318 W. 57
 Smith, C. H. *ph* 209 W. 105
 Smith, C. W. 1 *s* 329 W. 82
 Smith, D. H. 4 *c* 18 E. 46
 Smith, D. S. 1 *c* 134 W. 12
 Smith, E. L. *ph* 374 W. 116
 Smith, E. P. H. 1 *s* 138 W. 109
 Smith, F. G. 3 *s* New Rochelle
 Smith, F. W. 3 *m* 47 W. 49
 Smith, H. K. 1 *c* 114 W. 124
 Smith, H. V. A. 3 *m* 102 Palisade ave., Jersey City
 Smith, J. A. 4 *m* 329 W. 58
 Smith, J. B., Jr. 2 *c* 299 Alexander ave.
 Smith, L. B., Jr. 2 *s* 553 W. 156
 Smith, P. 3 *m* 534 W. 45
 Smith, R. L. 1 *l* Woodside
 Smith, T. M. 1 *l* 16 W. 85
 Smith, W. R. *pl* 108 W. 115
 Smithers, J. 1 *c* 117 W. 85
 Smyth, D. W. 1 *s* 405 E. 61
 Snyder, F. X. 1 *c* 539 9th st., Bklyn

- Snyder, H. G. *1 l* 248 W. 123
 Snyder, J. H. *3 l* 231 W. 134
 Sobel, F. *sp m* 208 E. 48
 Solomon, I. R. *1 s* 841 3d ave.
 Solomon, N. C. *3 s* 344 W. 145
 Sommerich, O. C. *3 l* 175 E. 79
 Son, C. A. *2 l* 417 W. 117
 Soper, E. H. *3 l* 220 Lenox ave.
 Soper, G. A. *p* 251 W. 93
 Southack, J. W. *2 c* 48 W. 53
 Southard, C. E. *1 l* 334 W. 145
 Spalding, A. B. *3 m* 355 W. 56
 Spence, H. T. *1 c* 320 W. 75
 Spencer, F. H. *4 m* 139 W. 61
 Spencer, J. W. *1 c* 236 W. 49
 Spiegel, L. *2 m* 317 E. 30
 Spiegel, M. J. *2 l*
 The Acropolis, W. 123
 Spiegelberg, E. E. *2 l* 156 W. 44
 Spiegelberg, S. L. *1 c* 156 W. 44
 Spiller, R. L. *3 s* 58 W. 51
 Spingarn, A. *2 m*
 393 McDonough st., Bklyn
 Spingarn, A. B. *2 l* 118 E. 58
 Spingarn, J. E. *ph* 118 E. 58
 Spiro, W. J. *2 c* 21 W. 95
 Spitzka, E. A. *1 m* 66 E. 73
 Squire, A. O. *4 m* 43 W. 60
 Stacey, E. E. *2 c* 320 W. 125
 Stadie, H. E. *1 s* 212 E. 118
 Stark, M. *2 m* 433 E. 57
 Stark, M. M. *4 m* 87 Baxter st.
 Stark, N. *2 m* 257 2d st.
 Starr, R. H. E. *2 l* 417 W. 117
 Starr, R. S. *2 m* 164 W. 64
 Staunton, H. C. *4 c* 145 W. 46
 Stayton, J. W., Jr. *1 l* 524 W. 123
 Stearn, S. *sp pl* 369 W. 119
 Stechert, F. C. *1 c*
 1369 Dean st., Bklyn
 Steedly, B. B. *2 m* 503 W. 147
 Steele, D. M. *ph* 41 E. 69
 Stein, M. *3 l* 254 E. 112
 Steinback, G. E. *2 s* 52 Barclay st.
 Steiner, O. D. *1 c* 22 E. 89
 Stern, A. *1 m* 740 E. 6
 Stern, A. J. *1 c* Bronxville
 Stern, A. R. *4 m* 55 W. 50
 Stern, M. *3 m*
 100½ 3d ave., Newark
 Stern, N. *ph* 448 W. 43
 Stern, S. W. *2 l* 101 E. 81
 Stetten, D. *2 m* 53 W. 133
 Steven, F. R. *3 s*
 264 Hicks st., Bklyn
 Steven, H. F. *sp s* 129 Lexington ave.
 Stevenson, M. *2 c* 10 W. 43
 Stevenson, R. *4 m* New Bridge, N. J.
 Stewart, H. R. *1 s* 417 Madison ave.
 Stewart, J. B. *1 s*
 1390 Washington ave
 Stewart, J. F. *3 m* 151 W. 61
 Stewart, R. G. *1 s*
 Stewart, W. A. W. *2 l* 27 E. 38
 Stiger, W. D. *2 l* 319 W. 74
 Stoddart, C. W. *3 c*
 13 Ludlow st., Yonkers
 Stoll, H. F. *1 m* 50 W. 65
 Stolper, J. H. *sp m* 212 W. 84
 Stone, N. I. *pl* 23 W. 114
 Stone, S. W. *4 m* 351 W. 27
 Stotler, J. H. *sp p* 312 W. 106
 Stout, J. S. *1 m* Jersey City
 Stradling, F. *3 m* 447 W. 57
 Strassburger, W. J. *1 s* 519 W. 123
 Stratford, A. C. *sp pl* 366 W. 118
 Stratford, T. A. *4 s*
 132 Berkeley pl., Bklyn
 Strauss, L. *3 s* 237 E. 12
 Strauss, M. A. *sp s* 75 E. 81
 Strauss, M. L. *2 l* College Point
 Strebeigh, R. L. *1 c* 76 E. 55
 Streeter, G. L. *4 m* 144 W. 64
 Striker, W. I. *1 s* 84 Lexington ave.
 Stripe, F. E. *2 l* 202 W. 103
 Stromeyer, W. T. *2 s*
 1008 Trinity ave.
 Strong, S. M. *2 m* New Rochelle
 Strunsky, S. *3 c* 3 E. 112
 Stryker, E. de M. *2 m* 139 W. 61
 Stuchell, W. T. *pl* 41 E. 69
 Sturgis, G. H. *1 l*
 148 Hooper st., Bklyn
 Sturm, M. A. *1 m* 237 E. Broadway
 Sturtevant, H. R. *1 c* 221 W. 122
 Sullivan, J. J. *1 m*
 Sumner, F. B. *p* 310 W. 122
 Sunderland, J., Jr. *1 m* 438 W. 57
 Sutphen, E. B. *2 m*
 999 Broad st., Newark
 Sutton, E. F. H. *4 m* Audubon pk.
 Sutton, F. J. H. *1 s* Audubon pk.
 Swanton, J. R. *ph* 125 W. 85
 Swart, C. T. *1 s* Mt. Vernon
 Swart, H. A. *1 s* Mt. Vernon
 Sylvia, C. A. *1 m* 163 W. 63
 Symmes, W. B., Jr. *1 l*
 2002 Madison ave.
 Takasu, T. *sp pl* 99 Nassau st.
 Tanner, E. P. *sp pl* Paterson
 Tarler, G. C. *3 l* 29 E. 132
 Taylor, B. I. *3 l* Rye
 Taylor, C. T. *1 c*
 207 Prospect ave., Mt. Vernon
 Taylor, S. F. *p* 1283 Columbus ave.
 Teahan, W. J. *2 m* 106 W. 61
 Tebbetts, T. C. *2 l* 27 W. 44

Telfair, J. H., Jr. 2 *m*
Port Richmond
Temple, T. R. sp *ph*
286 Livingston st., Bklyn
Tenney, A. A. *pl*
151 Hewes st., Bklyn
ter Meer, H. C. 1 *s*
1228 Garden st., Hoboken
Thayer, R. H. 2 *s* Yonkers
Theall, E., Jr. 2 *l*
228 St. John's pl., Bklyn
Thomas, H., 3 *l* 519 W. 123
Thompson, E. C. 2 *m*
Thorne, V. C. 3 *l* 677 West End ave.
Thurnauer, A. F. sp *c* 113 E. 61
Thurston, L. S. 1 *s* Nutley
Tiemann, H. P. 3 *s* 530 W. 123
Tierney, M. J. 4 *m* 271 W. 73
Tilt, B. B. 3 *s* 5 E. 67
Tinker, E. L. 1 *c* 48 E. 57
Titus, H. W. 1 *m* 36 W. 61
Titus, S. H., 2 *s*
360 Grand ave., Bklyn
Todd, G. W., 2 *m* 139 W. 63
Todd, L. A. 3 *m* 355 W. 56
Toering, A. J. 3 *m*
54 Nelson pl., Newark
Tombo, R., Jr. *ph* 2 Ridge pl.
Tomlinson, R. D. 3 *m*
212 La Grande ave., Plainfield
Tompkins, F. E. 4 *m* 132 W. 80
Torrey, J. C. *p* 2009 7th ave.
Tows, F. H. 1 *l* 34 W. 52
Trask, H. K. 1 *c* 140 W. 46
Trenchard-Wood, A. 4 *m* 111 W. 74
Trigg, W. H. 1 *l*
Trudeau, E. L., Jr. 3 *m*
Tsilka, G. M. sp *pl* 41 E. 69
Turnbull, R. J., Jr. 1 *l*
Turner, L. D., Jr. 1 *l*
Turner, W. S. 3 *c* 105 E. 83
Tuttle, C. H. 4 *c* 46 W. 85
Tyler, C. B. 1 *l* 44 W. 92
Tyler, W. S. 3 *l* 44 W. 92

Ulke, D. 1 *s* 777 Lexington ave.
Ullman, A. E. 4 *m* 253 W. 104
Ulman, J. N. 1 *l*
Underhill, B. F. 1 *s* New Rochelle
Underhill, J. G. *ph*
97 Lafayette ave., Bklyn
Ungrich, M. J. 1 *s* 213 W. 133
Upton, H. D. 1 *s* 181 W. 87

Vail, N. F. *ph* 14 Manhattan st.
Van Alstyne, W. B. 1 *m*
730 Watchung ave., Plainfield
van Beuren, F. T., Jr. 1 *m* 21 W. 14
Van Cise, W. M. 2 *c* Summit

Vandegrift, G. W. 2 *m* 287 Henry st.
Van Der Clock, C. 3 *m* Paterson
Vanderveer, G. F. 3 *l* 310 W. 115
Van Doren, G. B. 3 *m* 118 W. 69
Van Horne, J. R. 2 *s*
70 Summit ave., Jersey City
Van Howenberg, H., Jr. 1 *l*
523 W. 156
Van Ingen, P. 2 *m* 9 E. 71
Van Kleeck, C. M. 1 *c* 235 W. 45
Van Kleeck, M. J. 2 *l* 306 W. 104
Van Name, W. M. 4 *c* Tottenville
Van Saun, S. W. sp *m* 117 E. 28
Van Vranken, A. B. 3 *m*
152 So. 9th st., Bklyn
Van Wagenen, H., Jr. 2 *s* 36 E. 53
Van Wart, F. B. 1 *m*
340 Putnam ave., Bklyn
Van Winkle, C. T. sp *s*
Ridgefield, Conn.
Van Winkle, E. 2 *s*
127th st. and Convent ave.
Veach, R. W. sp *ph* 41 E. 69
Veit, J. N. 1 *s*
The Ashton, Mad. ave. and 93d st.
Ver Planck, W. E. 1 *s* 267 W. 79
Vigouroux, G. E. 1 *l* 50 W. 84
Vinton, S. 2 *l*
99 Centre ave., New Rochelle
Virgin, F. O. 4 *m* 148 W. 121
Vogel, K. M. 3 *m* 231 W. 71
Vogt, C. V. 3 *l* Morristown
Von Baur, C. H. 4 *s* 12 W. 130
von Deesten, H. T. 2 *m*
230 Washington st., Hoboken
Von Schrenk, A. 2 *s*
1676 East End ave.
Voss, E. 1 *c* 67 E. 91
Vreeland, C. L. 3 *m* 369 W. 117
Vreeland, W. N. 2 *m*
94 Forrest st., Jersey City
Vulté, N. P. 1 *s* New Rochelle

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Waechter, A. L. 4 *m* 216 E. 12
Wagner, O. 3 *l* 60 E. 93
Wagner, O. sp *s* 63 E. 72
Wagner, W. 3 *c* 64 Macon st., Bklyn
Wainwright, J. M. 4 *m*
Wait, B. W. *pl* 239 W. 123
Wakefield, F. S. 4 *m* 141 W. 63
Walbridge, G. H. 2 *c* The Acropolis
Walcott, G. D. *ph* 41 E. 69
Waldman, M. D. *ph* 30 Ave. B
Waldron, F. R. 1 *l* 254 W. 133
Wales, B. R. 1 *l* 254 W. 133
Walker, C. F. 2 *l* Guttenberg
Walker, H. 1 *l* 55 W. 74
Walker, I. L. 3 *m* 127 W. 63

- Walker, R. 3 *l* 55 W. 74
 Wallace, E. H. 1 *l* 526 W. 123
 Wallace, W. M. 1 *s* 60 E. 92
 Wahmsley, H. B. sp *m* 143 W. 72
 Walser, F. T. 1 *m* 105 W. 74
 Walsh, J. J. S. 2 *m* West Chester
 Walsh, L. A. 3 *s* 399 Manhattan ave.
 Walter, E. J. 3 *c* 303 5th ave.
 Ward, C. W. 1 *l* 429 W. 117
 Ward, E. 2 *c* White Plains
 Ward, F. E. sp *ph* 121 E. 77
 Ward, G. O. 1 *c* 131 W. 82
 Ward, S. L. H., Jr. 3 *c* White Plains
 Ware, E. T. *pl* 41 E. 69
 Ware, S. L. 2 *l* 117 W. 95
 Warner, L. T. 1 *l* 35 Mt. Morris pk., W.
 Warren, F. B. 1 *s* 477 W. 142
 Warren, G. L. 4 *m* 77 Houston st., Newark
 Warren, W. A. 1 *s* 109 W. 72
 Warren, W. T. 1 *s* Bronxville
 Washburn, E. S. 1 *s* 240 W. 138
 Washburn, P. C. 3 *m* 118 W. 69
 Wason, D. B. 3 *m* Port Richmond
 Waterhouse, H. E. 1 *m*
 Waterman, E. F. 1 *l* 202 W. 103
 Waters, R. L. 1 *s* 45 W. 70
 Watson, C. E. 1 *s* 174 W. 126
 Watson, E. L. 3 *m* 128 W. 61
 Watson, O. 4 *m* 100 W. 92
 Wattenberg, A. M. 2 *l* 153 W. 103
 Webb, F. R. sp *m* 308 W. 58
 Weber, L. G. 3 *m* 569 Park ave.
 Webster, C. E., Jr. 1 *m* 36 W. 61
 Wechsler, A. H. 2 *m* 620 Flushing ave., Bklyn
 Weed, V. W. 3 *m* 675 Jefferson ave., Bklyn
 Weekes, A. D., Jr. 1 *c* 47 E. 20
 Weekes, F. R. 2 *s* 604 W. 114
 Weeks, C. L. 2 *c* 157 W. 13
 Weidmann, A. 1 *l* 73 S. 9th st., Bklyn
 Weil, H. L. sp *pl* 42 W. 70
 Weil, R. 3 *m* 109 W. 77
 Weimert, O. J. 2 *l* 458 Manhattan ave.
 Weinstein, J. W. 3 *m* 122 Columbia st.
 Weinstein M. 4 *s* 544 W. 142
 Weinstein, M. J. 3 *c* 544 W. 142
 Weiss, F. H., 2 *m* 401 W. 57
 Weiss, L. 3 *m* 235 E. Kinney st., Newark
 Weisse, F. S. 3 *m* 46 W. 20
 Weisse, H. B. 1 *c* 46 W. 20
 Welch, J. E. 3 *m* 318 W. 57
 Welcke, C. J. 1 *s* 237 W. 112
 Welles, G. 1 *s* 51 E. 64
 Wells, J. G. 3 *m* 71 W. 45
 Wells, W. H. 1 *m* 111 Summit ave., Jersey City
 Wemlinger, J. R. 2 *s* 304 W. 20
 Wendelken, J. H. 1 *m* 328 4th ave.
 Wendt, J. 2 *l* 72 W. 120
 Werner, A. 1 *c* 36 E. 73
 Wessell, A. L. sp *pl* 47 W. 70
 Wessells, E. H. 3 *s* 43 W. 91
 West, H. J. 1 *c* Garnerville
 Westcott, C. S. 2 *m*
 Westcott, W. B. 1 *m* 117 W. 64
 Westerfield, W. R. 1 *l* 109 W. 123
 Weston, E. F. 2 *s* 604 W. 114
 Wetherhorn, H. 3 *c* 212 E. 70
 Weygandt, F. G. 2 *m* 645 Bedford ave., Bklyn
 Wheaton, C. F. 3 *l* 224 Buena Vista ave., Yonkers
 Wheeler, R. K. 4 *m* 153 W. 61
 Wheeler, W. L. 3 *m* 262 W. 23
 Wheelock, H. L. 3 *l* 27 W. 44
 Whitaker, C. H. *pl* 41 E. 69
 Whitbeck, S. V. 2 *m* 164 W. 64
 White, F. J. 1 *s* 53 St. John's pl., Bklyn
 White, G. D. 1 *m* 431 Fairmount ave., Jersey City
 White, J. F. 3 *m* 347 W. 28
 White, R. H. 2 *c* 119 Franklin st., Astoria
 Whitefield, W. B. 3 *m* 126 W. 96
 Whitehead, C. 3 *l* 545 W. 125
 Whitman, W. R. 2 *m* 117 W. 64
 Whitenack, M. R. 3 *m* 19 Bathgate pl., Newark
 Whitney, W. L. 1 *l* 231 Lenox Ave.
 Whittaker, N. McL. 1 *m* 1496 Fulton st., Bklyn
 Whittaker, T. S. 3 *c* 71 E. 66
 Whittemore, E. R. 1 *m* 346 W. 58
 Wickes, F. 1 *l* 14 W. 57
 Wiers, E. S. sp *pl* 41 E. 69
 Wigham, R. E. sp *c* 612 Lexington ave.
 Wilcox, H. B. 1 *m* 317 W. 58
 Willett, A. H. *pl*
 Williams, H. T. 2 *m* 415 W. 57
 Williams, I. D. 2 *m* 318 W. 57
 Williams, J. *ph* 551 5th ave.
 Williams, J. M. *pl* 700 Park ave.
 Williams, J. N. 3 *c* 463 W. 44
 Williams, J. T., Jr. sp *s*
 Williams, L. R. 4 *m* 149 E. 37
 Williams, P. H. 2 *m* 58 W. 82
 Williams, T. M. 2 *m* 318 W. 57
 Williamson, A. 1 *s* 110 W. 91
 Willis, R. S. 1 *c* 313 W. 76
 Willson, F. F. 1 *s* 200 W. 96

- Wilmot, H. C. 1 s 203 W. 106
 Wilner, E. 1 s 218 W. 4
 Wilson, A. S. 3 m 521 W. 123
 Wilson, B. W. 1 l 361 W. 123
 Wilson, C. H. 1 s 65 So. 2d ave., Mt. Vernon
 Wilson, C. L. 4 m 139 W. 61
 Wilson, E. E. 3 m
 Wilson, G. W. 1 l 361 W. 123
 Wilson, J. D., Jr. sp c
 Wilson, J. H. ph 175 9th ave.
 Wilson, L. G. 1 s 308 W. 89
 Wilson, R. P. 1 s
 Wilson, S. K. 1 c 120 W. 76
 Wilson, W. C. 3 m
 Wilzin, J. 1 l 52 W. 71
 Winchester, W. H. 3 m 459 W. 155
 Wing, P. W. 1 m 52 W. 65
 Winslow, A. S. 1 c 140 W. 94
 Winter, A. L. 3 m 229 E. 60
 Wise, H. E. 1 c 507 Mad. ave.
 Wise, H. M. 2 c 102 W. 121
 Wittemann, R. W. 1 s 88th st.,
 Fort Hamilton ave., Bklyn
 Witter, O. R. 2 m
 Witthaus, G. sp m 27 E. 75
 Woglom, W. H., Jr. 2 m
 243 McDonough st., Bklyn
 Wolf, W. 1 m 223 W. 115
 Wolff, J. B. 1 s 47 W. 54
 Wollheim, J. L. 1 m 317 E. 79
 Wollmann, C. ph 231 W. 112
 Wood, D., Jr. 1 s Irvington
 Wood, L. H. 3 l Mt. Kisco
 Wood, N. E. 1 s 369 W. 120
 Woodford, F. E. sp c 110 W. 126
 Wooding, E. von R. 1 s 519 W. 123
 Woodward, C. G. pl 202 W. 103
 Woodward, R. S., Jr. 1 s 310 W. 115
 Woodworth, R. S. ph 235 W. 120
 Woolsey, J. M. 1 l Englewood
 Wooster, F. R. 1 c
 Worm, O. R. W. pl 548 E. 87
 Wormser, M. 4 c 836 5th ave.
 Worthen, S. C. 2 l 7 Manhattan st.
 Wortmann, M. 3 c 126 E. 79
 Wright, A. sp p 252 W. 121
 Wright, R. G. 3 s 352 W. 115
 Wylie, J. P. 1 c 160 W. 123
 Wyman, A. F. 1 c Bloomfield
 Wyman, A. J. pl 41 E. 69
 Wyman, A. L. 2 c
 Bronxwood pk., Williamsbridge
 Yocum, J. G. 2 m
 45th st. and Madison ave.
 Yohannan, I. ph 138 E. 48
 Yohannan, M. 1 c 138 E. 48
 Yoneda, S. pl 175 9th ave.
 York, F. B. 2 l
 56 St. Mark's ave., Bklyn
 Yung, M. B. 2 s 352 W. 120
 Yuzzolino, A. M. 1 l
 265 6th ave., Bklyn
 Zeiger, F. ph
 138 Park st., Montclair
 Zenier, E. J. 1 m 38 W. 94
 Zerman, A. H. W. p 334 Lenox ave.
 Ziegel, H. F. L. 2 m
 1186 Lexington ave.
 Zinsser, H. W. 4 c 14 W. 68
 Zipser, M. 2 s 149 Rivington st.
 Zizinia, P. T. sp pl 210 W. 72
 Zucker, A. A. 1 s 1227 Madison ave.

Summary of Officers

Professors.....	70
Adjunct and Associate Professors.....	14
Clinical Professors and Lecturers.....	15
Demonstrators.....	3
Assistant Demonstrators.....	9
Instructors.....	54
Tutors.....	31
Assistants.....	51
Curators.....	3
Lecturers.....	25
Clinical Assistants.....	63
OFFICERS OF INSTRUCTION.....	338
OFFICERS OF ADMINISTRATION.....	12
EMERITUS OFFICERS.....	12
TOTAL.....	362

Summary of Students

At Columbia an effort is made to distinguish sharply between the College and the University. From this point of view,

Columbia College is the College	
The Faculty of Law	
“ “ “ Medicine	} constitute the University.
“ “ “ Philosophy	
“ “ “ Political Science	
“ “ “ Pure Science	
“ “ “ Applied Science	

College seniors may study under any of the university faculties. The Faculties of Law, Medicine, and Applied Science are professional faculties, and conduct the professional schools, known as the School of Law, the College of Physicians and Surgeons, the School of Mines, the School of Chemistry, the School of Engineering, and the School of Architecture. The Faculties of Philosophy, Political Science, and Pure Science conduct the work generally organized elsewhere as the graduate school; but in addition they give much instruction not only to seniors in the College, but also to regular students in the professional schools, a large percentage of whom are also college graduates. The table on the following page shows the total number of students studying in the College and under each faculty of the University, and also the number primarily registered in the College and under each faculty of the University. The first set of figures is free from duplication and shows the exact total of students in the institution. The second set shows the number studying under each faculty, including duplicates; the duplication indicates the extent to which Columbia's wide educational tender is treated as a unified tender, regardless of subdivision by schools and faculties.

Summary of Students

	Primary Registration	Total Registration
The COLLEGE :		
Senior class	53	
Junior "	86	
Sophomore "	87	
Freshman "	136	
Special students.....	34	
	— 396	398
The Faculty of LAW :		
Third-year class.....	106	
Second-year "	105	
First-year "	133	
Special students.....	4	
	— 348	353
The Faculty of MEDICINE :		
Fourth-year class.....	139	
Third-year "	179	
Second-year "	161	
First-year "	194	
Special students.....	29	
	— 702	706
The Faculty of APPLIED SCIENCE :		
Graduate students.....	8	
Fourth-year class.....	42	
Third-year "	62	
Second-year "	109	
First-year "	193	
Special students.....	36	
	— 450	470
The Faculties of PHILOSOPHY, POLITICAL SCIENCE, and PURE SCIENCE.....	252	534
TOTAL	2148	2461
BARNARD COLLEGE.....	257	
TEACHERS COLLEGE.....	1250*	
AUDITORS.....	21	
	—	
GRAND TOTAL.	3676	

* Including 1026 Extension Students.

Academic Calendar

- 1898—Oct. 3—Monday. First half-year, 145th year, begins.
 Oct. 15—Saturday. Last day of registration to obtain credit for residence for the full academic year.
 Nov. 8—Tuesday. Election Day, holiday.
 Nov. 24—Thursday. Thanksgiving Day, holiday.
 Nov. 25—Friday. Holiday.
 Nov. 26—Saturday. Holiday.
 Dec. 23—Friday. Christmas holidays begin.
- 1899—Jan. 3—Tuesday. Christmas holidays end.
 Jan. 30—Monday. Mid-year examinations begin.
 Feb. 11—Saturday. First half-year ends.
 Feb. 12—Sunday. Lincoln's Birthday.
 Feb. 13—Monday. Holiday.
 Feb. 13—Monday. Second half-year begins.
 Feb. 15—Ash-Wednesday. Holiday.
 Feb. 22—Wednesday. Washington's Birthday, holiday.
 Mar. 1—Wednesday. Last day for filing applications for University Fellowships.
 Mar. 31—Good-Friday. Holiday.
 April 1—Saturday. Last day for filing applications for examination for higher degrees.
 April 3—Monday. Last day for handing in graduation theses.
 May 1—Monday. Last day for presentation of essays for Degree of Master of Arts, and for filing applications for University Scholarships.
 May 20—Saturday. Last day for filing list of elective courses.
 May 22—Monday. Final examinations begin.
 May 30—Tuesday. Memorial Day, holiday.
 June 6—Tuesday. Last day for filing teachers' certificates of candidates for admission to Columbia College and to the Schools of Mines, Chemistry, Engineering, and Architecture.
 June 13—Tuesday. Examinations for admission begin.
 *June 14—Wednesday. Commencement.
 Sept. 18—Monday. Last day for filing teachers' certificates of candidates for admission to Columbia College and to the Schools of Mines, Chemistry, Engineering, and Architecture.
 Sept. 25—Monday. Examinations for admission begin.
 Oct. 2—Monday. First half-year, 146th year, begins.

* Subject to change in 1899.

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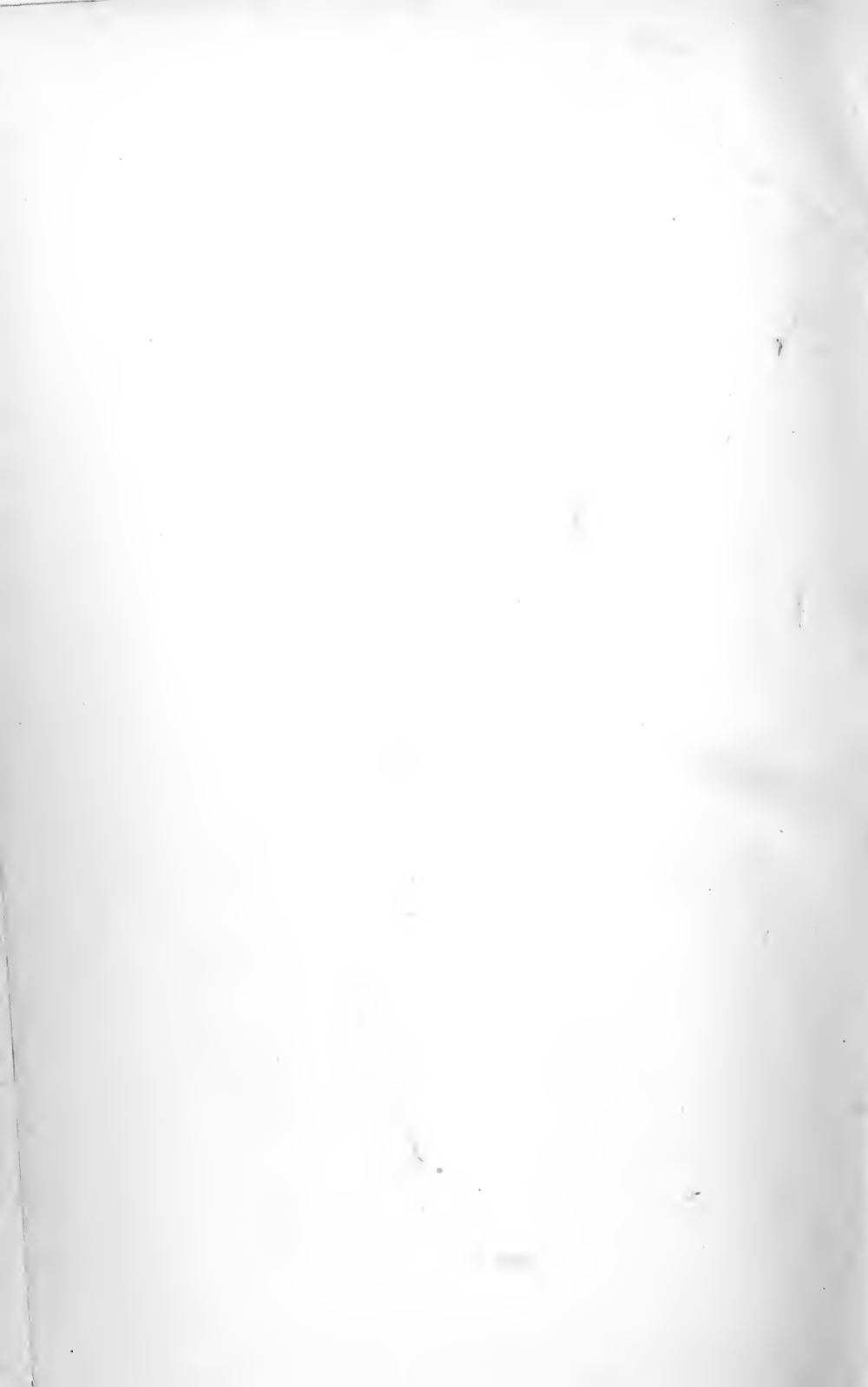
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